

Table S1: Study characteristics of selected articles.

Study	Study Design	No. of Pt	Age (years)	Orthodontic Types (No. of Pt)	Control group no orthodontic treatment (No. of Pt)	F/U periods	PD	PI	BOP
Abbate et al. 2015	RCT	50	10-18	Fixed 25	None	1 year	O	O	O
				Removable 25					
Azaripour et al. 2015	Cross Sectional Study	100	10-45	Fixed 50	None	6 months	X	O	O
				Removable 50					
Bergamo et al. 2019	Prospective Cohort Study	15	17.53 $\pm$ 8.0	Fixed 15	None	90 days	X	O	X
Boke et al. 2014	Retrospective study	251	13.37 $\pm$ 2.06	Fixed 231	None	2 years	X	O	X
				Removable 20					
Chhibber et al. 2018	RCT	71	15.6 $\pm$ 4.3	Fixed 44	None	18 months	X	O	O
				Removable 27					
				Removable 291					
Gehlot et al. 2022	Prospective Cohort Study	36	20-35	Fixed 18	Control 18	1 year	O	O	O
Ghijsselings et al. 2014	Prospective Cohort Study	24	13-18	Fixed 24	None	2 years	O	X	O
Han 2015	Prospective Cohort Study	35	35-74	Fixed 19	None	12 months	O	O	X
				Removable 16					
Issa et al. 2020	Cross Sectional study	80	Mean 27	Fixed 60	None	6 months	X	O	O
				Removable 20					
Karkhanechi et al. 2013	Prospective Cohort Study	42	28-34	Fixed 22	None	12 months	O	O	O
				Removable 20					
Kaygisiz et al. 2015	Prospective Cohort Study	60	12-18	Fixed 40	Control 20	8 weeks	O	O	O
Levrini et al. 2015	Prospective Cohort Study	77	16-30	Fixed 35	Control 10	3 months	O	O	O
				Removable 32					

Study	Study Design	No. of Pt	Age (years)	Orthodontic Types (No. of Pt)	Control group no orthodontic treatment (No. of Pt)	F/U periods	PD	PI	BOP
Madariaga et al. 2020	Prospective Cohort Study	40	21-35	Fixed 20	None	3 months	O	O	O
				Removable 20					
Moosa et al. 2015	Cross Sectional study	200	15-28	Fixed 100	Control 100	>3 months	O	X	X
Shokeen et al. 2022	Longitudinal comparative study	30	18-30	Fixed 15	None	1 year	X	O	X
				Removable 15					
Singla et al. 2022	Prospective Cohort Study	41	12-28	Fixed 41	None	6 months	O	O	X
Thilagrani et al. 2015	RCT	520	16-25	Fixed 220	Control 300	1 year	O	X	O

BOP: bleeding on probing, N/A: Not Available, O: data available, PD: probing depth, PI: plaque index, Pt: patient, RCT: randomized clinical trials; X: data not available

Table S2: PD – studies comparing both appliances.

Study	Age [years]	Approach (patients)	F/U period [month]	PD [mm]	<i>p</i> value
Abbate et al. 2015	10-18	Fixed 25	12	3.80	<0.05*
		Removable 25		2.73	
Han 2015	35-74	Fixed 19	12	2.53 ± 0.78	0.005*
		Removable 16		1.88 ± 0.44	
Karkhanechi et al. 2013	28-34	Fixed 22	12	3.05	<0.05*
		Removable 20		2.75	
Levrini et al. 2015	16-30	Fixed 35	3	2.18→2.20→1.3	Fixed vs removable <0.05*
		Removable 32		2.18→2.75→1.6	
		Control 10		2.15→2.15→1.7	
Madariaga et al. 2020	21-35	Fixed 20	3	10.4%→0%	>0.05
		Removable 20		13.9%→0.25%	

F/U: follow up; PD: probing depth

Table S3: PD –studies comparing fixed appliances with controls.

Study	Age [years]	Approach (patients)	F/U period [month]	PD [mm]	<i>p</i> value
Gehlot et al. 2022	20-35	Fixed 18	12	2.48 ± 0.57	0.845
		Control 18		2.25 ± 0.44	
Kaygisiz et al. 2015	12-18	Fixed 40	2	1.46 ± 0.23	0.213
		Control 20		1.63 ± 0.54	
Moosa et al. 2015	15-28	Fixed 100	>3	58% had pockets	<0.05*
		Control 100		16% had pockets	
Thilagrani et al. 2015	16-25	Fixed 220	12	0.70 ± 0.956	0.000*
		Control 300		0.18 ± 0.573	

F/U: follow up; PD: probing depth

Table S4: PD – single-armed studies for fixed appliances without controls.

Study	Age [years]	Approach (patients)	F/U period [month]	PD [mm]	<i>p</i> value
Ghijssels et al. 2014	13-18	Fixed 24	24	Baseline 2.0-2.2	>0.05
				Fixed 2.0-2.1	
Singla et al. 2022	12-28	Fixed 41	6	Baseline 1.78 ± 0.501	0.333
				Fixed 1.84 ± 0.512	

F/U: follow up; PD: probing depth

Table S5: PI – studies comparing both appliances.

Study	Age [years]	Approach (patients)	F/U period [month]	PI	<i>p</i> value
Abbate et al. 2015	10-18	Fixed 25	12	2.52	<0.05*
		Removable 25		0.45	
Azaripour et al. 2015	10-46	Fixed 50	6	37.7 ± 21.9	0.108
		Removable 50		27.8 ± 24.6	
Boke et al. 2014	13.37 ± 2.06	Fixed 231	24	5.92 ± 9.08	0.176
		Removable 20		4.77 ± 8.93	
Chhibber et al. 2018	15.6 ± 4.3	Fixed 44	18	1.32 ± 0.67	>0.05
		Removable 27		0.92 ± 0.58	
Han 2015	35-74	Fixed 19	12	1.02 ± 0.29	>0.05
		Removable 16		1.04 ± 0.37	
Issa et al. 2020	Mean 27	Fixed 60	6	1.71 ± 0.36	0.000*
		Removable 20		0.20 ± 0.18	
Karkhanechi et al. 2013	28-34	Fixed 22	12	1.17	<0.001*
		Removable 20		0.61	
Levrini et al.	Adult	Fixed 35	3	Removable better	Fixed vs

Study	Age [years]	Approach (patients)	F/U period [month]	PI	<i>p</i> value
2015		Removable 32		than fixed (data not show)	removable <0.05*
		Control 10			
Madariaga et al. 2020	21-35	Fixed 20	3	30.5 → 14.5%	>0.05
		Removable 20		41.5 → 10.5%	
Shokeen et al. 2022	18-30	Fixed 15	12	Anterior 2.96 ± 0.78 Posterior 2.36 ± 0.42	<0.05*
		Removable 15		Anterior 1.52 ± 0.74 Posterior 1.62 ± 0.12	

F/U: follow up; PI: plaque index

Table S6: PI – studies comparing fixed appliances with controls.

Study	Age [years]	Approach (patients)	F/U period [month]	Plaque index	Statistical information (<i>p</i> value)
Gehlot et al. 2022	20-35	Fixed 18	12	1.00 ± 0.14	0.842
		Control 18		1.00 ± 0.14	
Kaygisiz et al. 2015	12-18	Fixed 40	2	0.81 ± 0.43	0.406
		Control 20		0.63 ± 0.71	

F/U: follow up; PI: plaque index

Table S7: PI – single-armed studies for fixed appliances without controls

Study	Age (years)	Approach (patients)	F/U period [month]	PI		<i>p</i> value
				Baseline	Fixed	
Bergamo et al. 2019	17.53 ± 8.0	Fixed 15	3	1.0 ± 0.25	1.13 ± 0.26	>0.05
Singla et al. 2022	12-28	Fixed 41	6	0.557 ± 0.224	1.10 ± 0.264	<0.001*

F/U: follow up; PI: plaque index

Table S8: BOP – studies comparing both appliances.

Study	Age [years]	Approach (patients)	F/U period [month]	BOP (%)	<i>p</i> value
Abbate et al. 2015	10-18	Fixed 25	12	84	<0.05*
		Removable 25		9	
Azaripour et al. 2015	10-46	Fixed 50	6	15.2 ± 7.6	<0.001*
		Removable 50		7.6 ± 4.1	
Chhibber et al. 2018	15.6 ± 4.3	Fixed 44	18	0.84 ± 1.01	>0.05
		Removable 27		0.46 ± 0.72	
Issa et al. 2020	Mean 27	Fixed 60	6	0.71 ± 0.10	0.704
		Removable 20		0.01 ± 0.02	
Karkhanechi et al. 2013	28-34	Fixed 22	12	0.35	<0.05*
		Removable 20		0.18	
Levrini et al. 2015	Adult	Fixed 35	3	Removable better than fixed (data not show)	Fixed vs removable <0.05*
		Removable 32			
		Control 10			
Madariaga et al. 2020	21-35	Fixed 20	3	77%→13.5%	>0.05
		Removable 20		55.5%→13.5%	

BOP: bleeding on probing; F/U: follow up

Table S9: BOP – studies comparing fixed appliances with controls.

Study	Age [years]	Approach (patients)	F/U period [month]	BOP (%)	<i>p</i> value
Gehlot et al. 2022	20-35	Fixed 18	12	0.02 ± 0.02	0.535
		Control 18		0.04 ± 0.02	
Kaygisiz et al. 2015	12-18	Fixed 40	2	2.34 ± 0.56	0.024*
		Control 20		1.97 ± 0.73	
Thilagrani et al. 2015	16-25	Fixed 220	12	0.74 ± 0.651	0.922
		Control 300		0.95 ± 0.735	

BOP: bleeding on probing; F/U: follow up

Table S10: BOP – single-armed studies for fixed appliances without controls.

Study	Age (years)	Approach (patients)	F/U period [month]	BOP (%)		<i>p</i> value
				Baseline	Fixed	
Ghijselings et al. 2014	13-18	Fixed 24	24	0.396	0.794	<0.05*

BOP: bleeding on probing; F/U: follow up