



Short-term efficacy and long-term adherence to proximal gingivitis prevention

Derman SHM⁺, Scharfenberg I⁺, Stauff I, Barbe AG, Rott T, Deutscher D, Shamai S, Ludwar L, Noack MJ

University of Cologne, Department of Operative Dentistry and Periodontology, Germany

Objectives

- Population: participants with irregular interdental home-care
- Intervention: use of a microdroplet device in combination with a sonic toothbrush
- Comparison: use of dental floss and a manual toothbrush
- Outcome: PBI, adherence
- Study design: randomised controlled clinical trial (4 weeks) followed by a one-year observational study

Methods

- N=31 participants (with irregular interdental home-care and clinical signs of gingival inflammation)
- Using oral home-care aids twice daily for four weeks with either
 - **AF+SO H₂O**: AirFloss Ultra (filled with water) + Sonicare FlexCare+ (n=10)
 - **AF+SO LIST**: AirFloss Ultra (filled with Listerine Sensitive) + Sonicare FlexCare+ (n=11)
 - **CRTL**: dental floss (Oral B) + manual toothbrush (Eurodont) (n=10)
- Primary outcome: PBI
- Secondary outcome: adherence to oral home-care aids
- Evaluation at baseline, after 4 weeks and 1 year

Results

- After 28 days, both test groups showed significantly lower PBI scores compared to control (Figure 1).
- Even after 1 year, the regular use of either AirFloss Pro or dental floss led to a significantly reduced PBI (Table 3).
- Irregular or no interdental cleaning was reduced from 39% (baseline) to 6% (1year).
- 50% of no or irregular interdental cleaners and 58% of former dental floss users retained to AirFloss Pro use after 1 year (data not shown). Main argument: comfort (71%).
- 90% of participants used an electric toothbrush after 1 year (at baseline 42%, data not shown)

Figure 2. Efficacy in PBI reduction

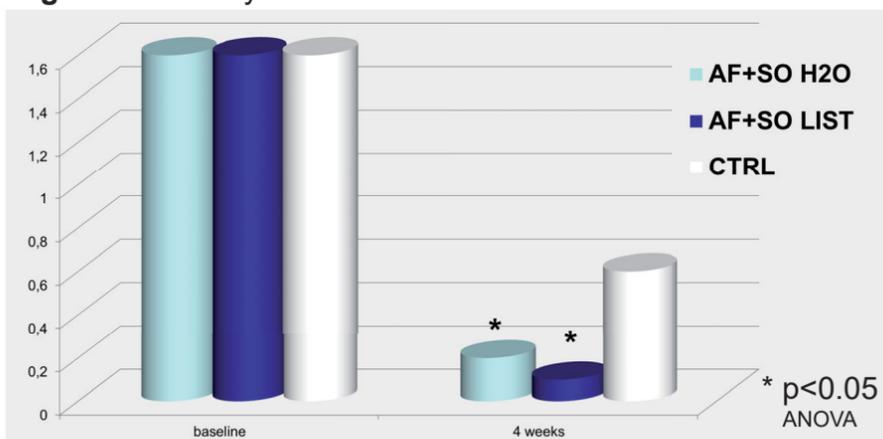


Table 1. Clinical characteristics

	AF+SO H ₂ O n=10	AF+SO LIST n=11	CRTL n=10	p-value [^]
Age Mean ± SD	32±13	27±7	38±19	.287
DMFT Mean ± SD	11±9	6±7	10±8	.298
Gender male	7	7	4	

p<0.05; [^]ANOVA

Table 2. Distribution of interdental home-care

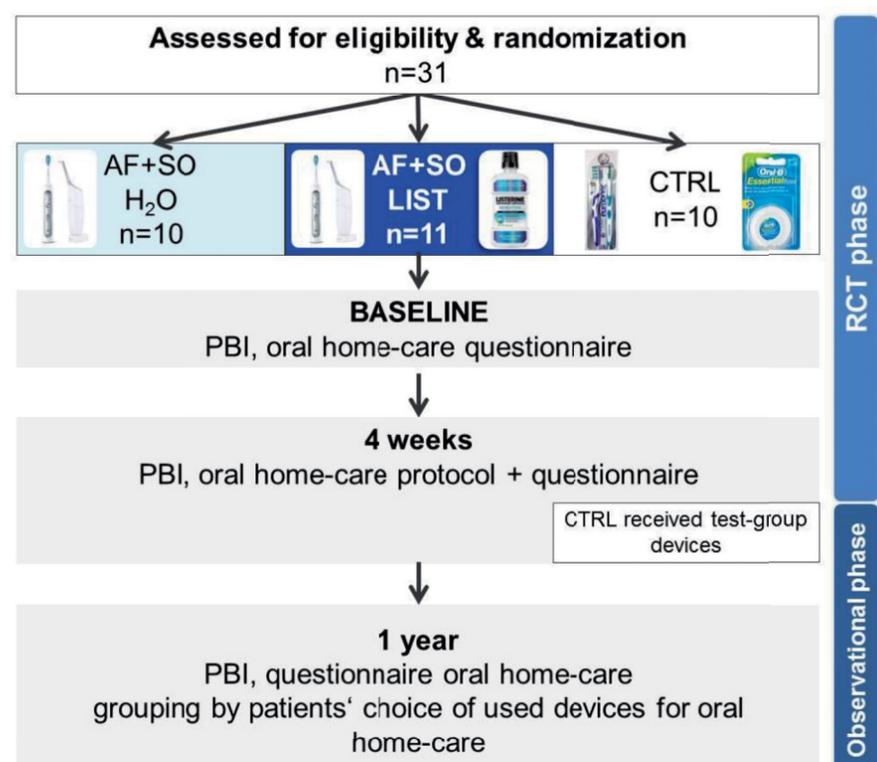
Regular interdental cleaning	Pre-study n (%)	1 year follow-up n (%)
no	12 (39)	2 (6)
yes	19 (61)	29 (94)

Table 3. Efficacy of patient-chosen interdental cleaning aids at 1 year follow-up

	n (%)	PBI mean ± SD		p-value [#]
		Baseline	1 year follow-up	
AirFloss Ultra	17 (55)	1.6±0.6	0.6±0.6	.000*
Dental Floss	9 (29)	1.6±0.5	0.5±0.7	.002*
Interdental brush	3 (10)	1.7±0.3	0.8±0.3	.097
No interdental cleaning	2 (6)	1.8±1.1	1.0±0.7	.135
p-value[^]		.828	.449	

*p<0.05; [^]ANOVA, [#] Wilcoxon signed rank test

Figure 1. Study flowchart



Conclusions for gingivitis patients:

- Combining a microdroplet device with a sonic toothbrush reduced gingivitis more effectively than a manual toothbrush with dental floss, irrespective of fluid used.
- Both, the microdroplet device and dental floss showed a prolonged reduced gingivitis status compared to interdental brush after long-term unsupervised use.
- Attributed to the usage comfort, powered oral hygiene aids are well accepted by patients as 90% used a powered toothbrush after one year and 59% the microdroplet device.