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Dental Plaque Reformation After Professional Dental Prophylaxis in Adult Beagle Dogs: A 60-Day Evaluation of Polished and Non-Polished Dental Surfaces

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Abstract

Dental plaque rapidly re-accumulates after professional prophylaxis, but the long-term effectiveness of polishing in reducing plaque formation remains unclear. This study evaluated the dynamics of dental plaque reformation over 60 days following professional dental prophylaxis in adult beagle dogs and to investigate whether dental polishing influenced subsequent plaque coverage. Twelve clinically healthy adult beagle dogs underwent professional dental prophylaxis with ultrasonic scaling. A split-mouth design was used, in which the dental surfaces on the left side were polished (POL+), whereas those on the right side remained unpolished (POL−). Dental plaque was evaluated using standardized photographs of the buccal surfaces of canine, premolar, and molar teeth at 5, 10, 20, 30, and 60 days after prophylaxis. Plaque coverage was quantified as the percentage of the evaluated tooth surface area stained by a plaque-disclosing solution relative to the total evaluated tooth surface area. Mean plaque coverage increased numerically over the 60-day follow-up period under both experimental conditions and was numerically lower on POL+ surfaces at all evaluation time points. No significant differences between POL+ and POL− surfaces were observed on days 5, 10, and 20. On day 30, plaque coverage was significantly lower on POL+ than on POL− surfaces (82.4% vs. 86.0%; P = 0.0205), representing an absolute difference of 3.6 percentage points. By day 60, plaque coverage reached 92.1% for POL+ and 93.1% for POL− surfaces, with no significant difference between treatments (P = 0.3272). Dental plaque coverage was already extensively re-established five days after professional prophylaxis and increased numerically throughout the 60-day follow-up period, reaching more than 90% of the evaluated surface in both treatments by the end of the study. Polishing was associated with lower plaque coverage only on day 30, and this difference was no longer evident by day 60. Overall, there was no evidence of a sustained effect of polishing on plaque coverage over the evaluated period, reinforcing the importance of continuous plaque-control measures following professional dental prophylaxis.

Keywords: Dental Plaque; Dental Prophylaxis; Dental Polishing; Plaque; Dental Calculus, Beagle; Oral Health; Biofilm.

Introduction

Periodontal disease is among the most frequently diagnosed oral conditions in dogs, and its occurrence increases with age, although frequency and severity vary among populations, breeds, and assessment methods

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[1,2]. Clinically, periodontal diseases range from gingivitis, characterized by inflammation restricted to gingival tissues and potentially reversible, to periodontitis, in which the inflammatory process progressively involves the tooth-supporting tissues and may result in attachment loss, bone resorption, and tooth loss [3]. Dental plaque plays a central role in this process, constituting a biofilm adhered to the tooth surface whose persistence along the gingival margin favors the establishment and maintenance of periodontal inflammation [3]. Dental plaque is an organized microbial biofilm that becomes established on the tooth surface through initial adhesion, growth, and succession of the bacterial community. After professional cleaning, salivary components rapidly coat the enamel surface and form the acquired pellicle, creating an interface for microbial adhesion and subsequent biofilm development [4]. In dogs, this recolonization occurs rapidly: supragingival communities become established 24 hours after scaling and polishing, with additional changes in bacterial composition between 24 and 48 hours [5]. This rapid re-establishment of the biofilm after prophylaxis indicates that professional cleaning produces an initial reduction in deposits but does not prevent subsequent plaque reformation, making it relevant to understand its dynamics throughout the post-procedure period [3-5]. Professional dental prophylaxis in dogs involves the mechanical removal of plaque and calculus by scaling, with polishing recommended as a subsequent step to reduce surface irregularities produced by instrumentation [3]. Studies evaluating canine enamel by electron microscopy have shown that scaling and polishing procedures can modify dental surface morphology, although these studies did not directly quantify roughness or monitor subsequent plaque formation [6,7]. Because the topography of intraoral surfaces can influence bacterial retention, reducing these irregularities provides a mechanistic rationale for polishing after scaling [3-8]. However, experimental evidence regarding the duration of this effect is limited: Watanabe et al. (2015) observed lower bacterial counts after scaling followed by polishing compared with scaling alone during the first weeks, but this difference was no longer evident later [9]. Thus, the extent and, particularly, the persistence of any additional effect of polishing on plaque reformation throughout the post-prophylaxis period remain poorly defined. Although plaque reformation after professional cleaning is rapid, its subsequent progression can be modified by continuous control measures. In dogs previously subjected to scaling and polishing, the daily provision of dental chews reduced indicators of plaque and calculus accumulation compared with animals maintained only on the control diet [10,11]. Similarly, experimental studies have shown that daily tooth brushing maintains a lower bacterial load for weeks after scaling, indicating that repeated mechanical disruption of the biofilm has a more sustained effect than interventions performed only at the time of prophylaxis [9-12]. However, experimental evidence specifically isolating the effect of polishing and directly monitoring plaque reformation for periods extending beyond the first weeks remains limited. Given this knowledge gap, the objective of this study was to evaluate the dynamics of dental plaque reformation over 60 days following professional dental prophylaxis in adult beagles, comparing polished and non-polished dental surfaces using a split-mouth design. The hypothesis was that polished surfaces would present a lower percentage of tooth surface covered by plaque than non-polished surfaces during the post-prophylaxis period.

Materials and Methods

Experimental design and inclusion criteria

All procedures involving the dogs were approved by the Institutional Animal Care and Use Committee of the institution responsible, and all procedures were conducted respecting the acceptance of each dog after they were trained (protocol no. 25.685). Twelve clinically healthy adult beagles, six males and six females, were included in the experiment. All dogs were intact, 4 years of age, with a mean body weight of 12.7 ± 1.44 kg and a body condition score of 5.3 ± 0.4 on a nine-point scale [13]. Before the beginning of the experiment, all dogs underwent clinical examination and laboratory evaluation, including a complete blood count and serum biochemical analysis. The dogs were routinely vaccinated and free of endo- and ectoparasites. Oral condition was assessed before the experimental procedures by clinical examination of the oral cavity and dental radiography to identify possible dental abnormalities. Teeth with severe periodontal disease, fractures, or dental mobility were excluded from the evaluation.

Feeding management and housing

The dogs were fed twice daily with a complete raw experimental diet formulated for adult dog maintenance (Table 1). The daily amount offered was calculated to meet maintenance energy requirements and maintain body condition score within the normal range, using 130 kcal of metabolizable energy × body weight $(kg)^{0.75}$ per day, according to the NRC [14]. The same food was provided throughout the experimental period.

During the study, the dogs were individually housed in stainless-steel metabolic cages (1.0 × 1.0 × 1.5 m), equipped with a feeder, drinker, and fecal and urine collectors. The environment was maintained at 24 °C and 70% relative humidity. After the morning meal, provided at 08:30, the dogs were released into an outdoor area for exercise and socialization, remaining there until they returned to their cages at 17:00. Water was provided *ad libitum* throughout the experimental period.

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Table 1: Ingredient composition and analyzed nutrient content of the experimental diet.

Ingredient	Content, g/kg
Raw ground chicken meat	944
Limestone	15.1
Dicalcium phosphate	24.5
Potassium chloride	3.6
Choline chloride	2.0
Salt	1.2
Vitamin-mineral premix[1]	9.6
Analyzed nutrient content, g/kg dry matter basis	
Crude protein	530
Acid-hydrolyzed fat	390
Ash	75.6
Calcium	24.2
Phosphorus	19.4
Ca/P ratio	1.25
Metabolizable energy, kcal/kg[2]	4,630

[1]Enrichment applied to the diets per kilogram: vitamin A (10,800 IU), vitamin D3 (980 IU), vitamin E (60 mg), vitamin K3 (4.8 mg), vitamin B1 (8.1 mg), vitamin B2 (6.0 mg), vitamin B6 (6.0 mg), vitamin B12 (30 µg), pantothenic acid (12 mg), niacin (60 mg), folic acid (0.8 mg), biotin (0.084 mg), manganese (7.5 mg), zinc (100 mg), iron (35 mg), copper (7.0 mg), cobalt (10 mg), iodine (1.5 mg), selenium (0.36 mg), choline (2.400 mg), taurine (100 mg), and the antioxidant BHT (150 mg).
[2]Metabolizable energy was estimated from digestible energy, estimated in 94% of the crude energy and by subtracting 1.25 kcal/g of digestible protein from digestible energy to obtain the metabolizable energy content in the diet.

Dental prophylaxis and experimental treatments

Professional dental prophylaxis was performed on all dogs on the same day by a veterinarian trained in veterinary dentistry. The procedures were conducted under general anesthesia using acepromazine (0.03 mg kg^{-1}) and meperidine (2.0 mg kg^{-1}), followed by induction with propofol (4.0 mg kg^{-1}) and anesthetic maintenance with isoflurane administered to effect. Initially, supragingival and subgingival calculus deposits were removed using an ultrasonic dental scaler (automatic dual voltage 110 V/220 V; power consumption: 42 VA; ultrasound frequency: 29 kHz to 32 kHz; irrigation system: inlet connection; air inlet pressure: 483 to 552 kPa; operation: foot pedal control) until all visible deposits had been eliminated. After scaling, two to three drops of a plaque-disclosing solution containing 0.010% methylene blue (VISUPLAC®, Maquira, Brazil) were applied to the dental surfaces to verify the effectiveness of plaque removal. Areas that remained stained were cleaned again until no visible residual plaque remained. A split-mouth design was then applied, in which the left dental arch was assigned to the polishing treatment (POL+) and the right dental arch to the non-polishing treatment (POL−). On POL+ surfaces, polishing was performed with a low-speed dental handpiece equipped with a rubber cup and prophylaxis paste for approximately 5 to 10 seconds per tooth. POL− surfaces were not polished after scaling.

Dental plaque evaluation

To standardize image acquisition during evaluations performed without anesthesia, the dogs were previously conditioned to lateral recumbency using positive reinforcement with treats for approximately 3 minutes per day throughout the month preceding the beginning of the experiment. On day 0, baseline photographic records were obtained with the dogs under general anesthesia, immediately before and after dental prophylaxis. Images were acquired with a semi-professional digital camera positioned approximately 150 mm from the evaluated dental surfaces, maintaining a standardized photographic procedure for the left and right sides of the oral cavity. After prophylaxis, additional evaluations were performed on days 5, 10, 20, 30, and 60. At each time point, dental plaque was disclosed using the same solution containing 0.010% methylene blue (VISUPLAC®, Maquira), and photographs were obtained approximately 5 minutes after its application. Plaque quantification was performed on the buccal surfaces of the canine, premolar, and molar teeth included in the evaluation. Images were analyzed using Image-Pro Plus software (Media Cybernetics, USA), using the surface integration tool, according to a methodological adaptation previously employed in studies with dogs [15, 16]. Initially, the outline of the buccal surface of each tooth was delineated to determine the total evaluated area. The stained areas corresponding to the presence of dental plaque were then delineated. Plaque coverage was expressed as the percentage of stained areas relative to the total evaluated tooth surface area.

Statistical analysis

Dental plaque coverage data were initially evaluated for normality of residuals and homogeneity of variances. The percentage of tooth surface covered by plaque was analyzed by analysis of variance (ANOVA), considering the split-mouth design and repeated evaluations over time within the same dog. The effects of treatment (POL+ and POL−), time (5, 10, 20, 30, and 60 days), and the treatment × time interaction were considered. The dog was considered the experimental unit and included in the model to account for dependence among observations obtained from the same animal. Means were obtained through multiple comparisons using the PROC MIXED procedure in SAS software, version 9.4 (SAS Institute Inc., Cary, NC, USA), and compared using Tukey's test. Statistical significance was set at $P < 0.05$.

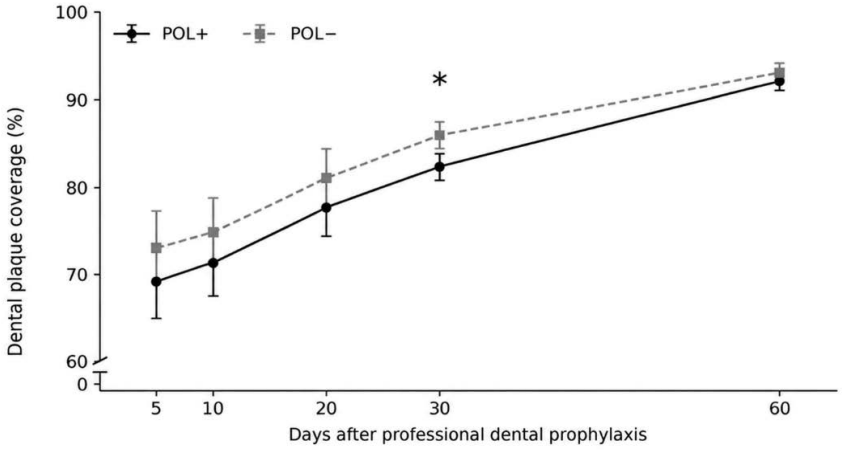
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Results

Dental plaque reformation after professional prophylaxis

All 12 dogs completed the experimental period and were included in the final analysis. Tooth surface plaque coverage at different time points after prophylaxis is presented in Figure 1.

Mean plaque coverage increased numerically throughout the 60-day follow-up period under both experimental conditions. In the POL+ treatment, mean values were 69.3%, 71.4%, 77.8%, 82.4%, and 92.1% on days 5, 10, 20, 30, and 60, respectively. For POL−, the corresponding values were 73.0%, 74.9%, 81.1%, 86.0%, and 93.1%. On days 5, 10, and 20, no significant differences were detected between POL+ and POL− ($P = 0.3981$, $P = 0.3766$, and $P = 0.3261$, respectively). On day 30, plaque coverage was significantly lower on POL+ surfaces than on POL− surfaces (82.4% vs. 86.0%; $P = 0.0205$), corresponding to an absolute difference of 3.6 percentage points. On day 60, values were 92.1% for POL+ and 93.1% for POL−, with no statistically significant difference between treatments ($P = 0.3272$). At all evaluated time points, mean plaque coverage was numerically lower in POL+ than in POL−, although a statistically significant difference between treatments was detected only on day 30. Representative images of disclosed plaque on days 5, 10, 20, 30, and 60 are presented in Figures 2 and 3.



Day	POL+ (%)	POL− (%)	P-value	SEM
5	69.3	73.0	0.3981	4.34
10	71.4	74.9	0.3765	3.88
20	77.8	81.1	0.3261	3.32
30	82.4	86.0	0.0205	1.53
60	92.1	93.1	0.3272	1.05

Values are means ± SEM. *Difference between treatments on day 30 (P = 0.0205).

Figure 1: Dental plaque coverage (%) on polished (POL+) and unpolished (POL−) tooth surfaces in adult beagle dogs after professional dental prophylaxis. Points represent means, and error bars represent the standard error of the mean (SEM). The asterisk indicates a significant difference between treatments on day 30 (P = 0.0205). The vertical axis contains a break. Corresponding means, SEM, and P-values are presented below the graph.

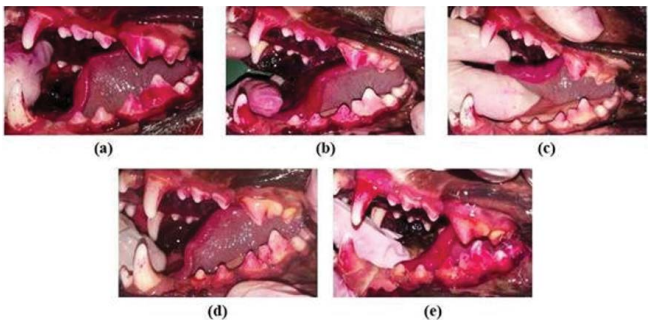


Figure 2: Left dental arcade of a dog following professional dental prophylaxis with polishing (POL+). Dental plaque accumulation visualized using a plaque-disclosing solution at 5 (a), 10 (b), 20 (c), 30 (d), and 60 (e) days after the procedure.

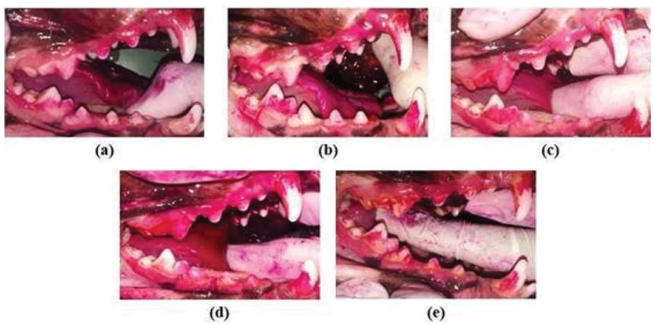


Figure 3: Right dental arcade of a dog following professional dental prophylaxis without polishing (POL−). Dental plaque accumulation visualized using a plaque-disclosing solution at 5 (a), 10 (b), 20 (c), 30 (d), and 60 (e) days after the procedure.

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Discussion

In the present study, dental plaque coverage was already largely re-established at the first evaluation time point, five days after professional prophylaxis, and increased numerically throughout the 60-day follow-up period on both polished and non-polished surfaces. Although polished surfaces showed significantly lower plaque coverage on day 30, the absolute difference between treatments was only 3.6 percentage points and was no longer evident by day 60. Taken together, these findings indicate that polishing was associated with a limited and transient difference in plaque coverage, with no evidence that the prophylactic effect was maintained at the end of the observation period. The extensive plaque coverage observed as early as the fifth day after prophylaxis is consistent with the rapid recolonization of dental surfaces previously described in dogs. Holcombe *et al*. (2014) demonstrated that supragingival plaque communities were already established 24 hours after scaling and polishing, with additional changes in bacterial composition between 24 and 48 hours [5]. These findings indicate that mechanical removal of dental deposits establishes only an initial clean-surface condition and does not prevent rapid biofilm re-establishment. In addition to the physical re-establishment of plaque, prophylaxis also temporarily modifies the structure of the microbial community. Flancman *et al*. (2018) observed significant changes in the microbiota of supragingival plaque and the oral cavity one week after prophylaxis, followed by a transition toward the pre-procedure profile over the subsequent weeks, with communities similar to baseline in several respects after five weeks [17]. Thus, the available microbiological data suggest high ecological resilience of the canine oral microbiota after prophylaxis, with a high capacity for reorganization following removal of dental deposits, which is consistent with the progressive re-establishment of plaque coverage observed in the present study. Plaque reformation after prophylaxis is consistent with the known dynamics of dental biofilm development. After cleaning of the tooth surface, salivary components rapidly form the acquired pellicle, which functions as an interface for microbial adhesion; initial colonization, growth, and progressive reorganization of the microbial community then occur [3,5]. In dogs, supragingival communities can already be identified 24 hours after scaling and polishing, demonstrating that mechanical removal of deposits does not prevent rapid biofilm re-establishment [5]. Thus, prophylaxis should be understood as an intervention capable of removing existing deposits and temporarily restoring a clean tooth surface, but not as a measure capable, by itself, of preventing subsequent plaque reformation for prolonged periods.

One of the main findings of the present study was the limited magnitude of the difference between polished and non-polished surfaces. The clinical rationale for polishing after scaling is based on reducing irregularities produced by instrumentation and, consequently, the possibility of decreasing sites favorable to plaque retention. The WSAVA dental guidelines recommend polishing after scaling precisely because instrumentation may produce microabrasions and increase surface roughness, whereas polishing tends to smooth the tooth surface and potentially delay plaque re-adhesion [3]. Experimental evidence in canine enamel provides partial support for this mechanism. Fichtel *et al*. (2008) observed, by electron microscopy, that different combinations of scaling and polishing produced distinct patterns of surface irregularity and damage, with better enamel preservation in some combinations involving polishing [6]. Similarly, Correia *et al*. (2023) demonstrated, also by electron microscopy, morphological differences between surfaces subjected only to prophylaxis and surfaces subjected to polishing protocols, including a qualitative reduction in grooves under certain conditions [7]. However, none of these studies directly quantified roughness by profilometry or monitored subsequent plaque formation, so the relationship between surface topography and biofilm reformation remains inferential. The plausibility of this relationship is reinforced by studies of intraoral surfaces, in which greater roughness has been associated with greater bacterial retention and greater plaque accumulation; however, much of this evidence derives from human dental materials and models and should therefore be extrapolated to canine enamel with caution [8]. More directly related to the present study, Watanabe *et al*. (2015) compared scaling alone with scaling followed by polishing in beagles and observed a lower number of oral bacteria during the first weeks after polishing, but this difference also ceased to be evident later [9]. This temporal pattern is consistent with the findings of the present study: plaque coverage was numerically lower on POL+ surfaces at all time points, although a statistically significant difference was detected only on day 30 and was no longer evident by day 60. Thus, the available data suggest that, when present, the effect of polishing on plaque reaccumulation or bacterial load may be modest and transient. The relatively small differences between POL+ and POL− surfaces throughout the follow-up period may reflect the multifactorial nature of plaque formation, with surface topography representing only one of the several factors influencing plaque adhesion and accumulation. The roughness of intraoral surfaces may influence bacterial retention [8], but after initial colonization, biofilm development also depends on interactions among microorganisms, community growth, and progressive organization of the biofilm matrix [4,5]. In this context, it is biologically plausible that subtle differences between polished and non-polished surfaces exert greater influence during the initial stages of retention than at later stages, when the biofilm already occupies a large proportion

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of the tooth surface. The loss of the difference between POL+ and POL− surfaces on day 60 is consistent with this hypothesis, although the present study did not directly evaluate roughness, bacterial adhesion, biofilm thickness, or biofilm maturation and therefore cannot confirm this mechanism. It is also important to distinguish the surface extent of plaque from its microbiological characteristics. Studies in dogs demonstrate that bacterial communities associated with plaque differ according to periodontal status and may undergo ecological succession over time. Davis *et al*. identified distinct bacterial profiles in the subgingival plaque of dogs with healthy gingiva, gingivitis, and early periodontitis [18]. In a longitudinal study, Wallis *et al*. (2015) observed progressive changes in the proportions of bacterial taxa during the transition from gingivitis to periodontitis, indicating that biofilm evolution involves community reorganization rather than merely a quantitative increase in plaque [19]. More recently, Alessandri *et al*. (2024) demonstrated taxonomic and functional differences in the oral microbiota of healthy dogs, dogs with chronic gingival inflammation, and dogs with periodontitis, as well as variations related with the specific oral microniche and tooth location [20]. These findings reinforce that the high percentage of stained surface observed in the present study should be interpreted as a measure of the visible extent of plaque rather than as a direct indicator of biofilm maturity, dysbiosis, microbial composition, or severity of periodontal disease. From a clinical perspective, the increase in plaque coverage after prophylaxis reinforces that professional removal of dental deposits does not replace continuous home plaque-control measures. Among these measures, tooth brushing has direct experimental evidence in dogs. Watanabe *et al*. (2015) observed that daily tooth brushing after scaling maintained a lower number of oral bacteria for eight weeks compared with scaling alone, regardless of previous polishing [9]. In a subsequent study, daily tooth brushing also reduced bacterial proliferation after scaling, showing a more consistent effect than toothpaste application alone [12]. These results are particularly relevant to the present study because they contrast an intervention performed only at the time of prophylaxis, such as polishing, with repeated mechanical disruption of the biofilm throughout the post-procedure period. Other strategies may complement tooth brushing, although their effects depend on product characteristics and the outcome evaluated. Hennet *et al*. (2006) observed, after four months, reductions of 17.3% in plaque accumulation and 45.8% in calculus in dogs that received a daily oral-hygiene chew compared with animals fed only the control diet [10]. Similarly, Oba *et al*. (2021) demonstrated that certain chews provided daily after professional cleaning reduced different oral-health indicators, including plaque thickness, calculus coverage and thickness, pocket depth, and bleeding, in addition to modifying the oral microbiota [11]. Studies on diet also suggest an association between dietary characteristics and oral condition; in a large population of dogs presented to veterinary clinics, Gawor *et al*. (2006) found differences in the frequency of dental deposits and periodontal disease according to dietary pattern, although the observational design does not allow these differences to be attributed solely to diet [21]. In addition, chewing interventions may alter not only visible deposits but also the composition of the supragingival plaque microbiota, as observed by Ruparell *et al*. (2020) in a crossover study with beagles [22]. Pinto *et al*. (2021) also observed changes in oral bacterial composition following the daily provision of autoclaved bovine bones for 13 days. In the group receiving spongy bones, the relative abundance of *Moraxella* sp. in pooled gingival sulcus samples increased from 3.16% to 63.1%, whereas that of *Porphyromonas gulae* decreased from 22.0% to 0.19%. In the group receiving compact bones, the corresponding values increased from 2.66% to 3.37% and from 15.7% to 25.1%, respectively [23]. These findings add a microbiological dimension to the evaluation of chewing interventions, whereas the present study was limited to quantifying the surface extent of dental plaque. These findings indicate that post-prophylaxis control should be understood as a continuous process rather than as a lasting consequence of a single professional procedure. At the same time, the different strategies should not be considered equivalent: tooth brushing, diets formulated for oral health, and chew products act through distinct mechanisms and are supported by evidence based on different outcomes, such as plaque coverage or thickness, calculus, bacterial load, microbiota, and gingival indices. Therefore, the absence of plaque immediately after prophylaxis should not be interpreted as prolonged protection against its reformation, and polishing should be understood as a step in the professional procedure rather than as a substitute for continuous plaque-control measures. Some limitations should be considered when interpreting the results. First, although the *split-mouth* design allowed polished and non-polished surfaces to be compared within the same animals, treatment allocation was not randomized between sides of the oral cavity: the left side systematically received POL+, whereas the right side remained POL−. Consequently, treatment and laterality were confounded, so the contribution of side-related differences to the differences observed between POL+ and POL− cannot be completely excluded. Future studies could reduce this limitation by randomizing or counterbalancing the side assigned to polishing. However, based on the results obtained, we believe that this potential bias had minimal influence on the results, if any. Second, the outcome used quantified the percentage of the visible buccal surface stained by the plaque-disclosing solution. This approach allows estimation of the surface extent of plaque but does not provide information on

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thickness, biomass, bacterial load, taxonomic composition, functional activity, or characteristics of subgingival plaque. This distinction is biologically relevant because canine studies demonstrate important differences among plaque communities according to oral niche, tooth location, and periodontal status [18,20]. Therefore, high coverage values, such as those observed at the end of follow-up, should not be interpreted in isolation as evidence of greater dysbiosis, biofilm maturity, or periodontal severity. Third, enamel surface roughness was not measured directly. Thus, although reduction of irregularities constitutes one of the main mechanistic justifications for polishing [3,6,8], the present study does not allow a direct relationship to be established between changes in enamel topography and subsequent plaque coverage. The absence of this measurement also prevents determination of whether individual differences in the dental surface contributed to the observed response. In addition, the number of animals was relatively small ($n = 12$), which may have reduced the precision of the estimates and the ability to detect small-magnitude effects. This limitation is particularly relevant because the differences between POL+ and POL− were small at most evaluation time points. Finally, all dogs were adult beagles, clinically healthy, and maintained under standardized experimental conditions. Although this homogeneity reduces sources of variation during the experiment, it also restricts the generalizability of the findings to dogs of other breeds, sizes, ages, and clinical conditions. A similar limitation in extrapolation has already been recognized in longitudinal studies conducted with homogeneous beagle colonies [17]. Under the conditions of this study, dental plaque coverage was already largely re-established five days after professional prophylaxis and increased numerically throughout the 60-day follow-up period, reaching more than 90% of the evaluated surface in both treatments at the final observation time point. Polished surfaces showed numerically lower values than non-polished surfaces at all time points, but a statistically significant difference was detected only on day 30, with an absolute magnitude of 3.6 percentage points, and was no longer evident at 60 days. Considering these observations, there was no evidence of a sustained effect of polishing on plaque coverage throughout the evaluated period. These findings reinforce that polishing should be understood as a component of professional dental prophylaxis rather than a substitute for continuous plaque-control strategies, such as regular mechanical oral hygiene following the procedure.

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Conflict of interest: The authors declare no conflicts of interest related to this study.

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