Evaluation of dog welfare before and after a professional grooming session

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Abstract: Some types of dog fur require special care, such as regular washing and cutting. Owners often prefer to turn to professional groomers working in equipped facilities. The aim of this study was to investigate if a professional grooming session can cause stress to the dog.

Nine dogs were subjected to a standardized 30 minutes-grooming session. Each animal was videoed for 5 minutes before and after the grooming and all videos were analyzed to measure the duration of potential signs of acute stress in dogs. Moreover, a veterinarian behaviorist provided a holistic assessment of the dog's stress level with a 0 to 5 scale.

Concerning the level of stress of dogs and the duration of each analyzed behavior before and after the grooming session, no statistical difference was found. Only nose licking was found to be statistically higher after the grooming (W=-2.52; p=0.012).

Most dogs appeared already stressed before being groomed and, for this reason, more research is needed to better investigate if the grooming itself is stressful for dogs.

The findings of this study suggest that the grooming shop can be stressful for dogs for all the time dogs stay in it, from the arrival until the departure. Owners and groomers should be aware of how to reduce such stress which may become a welfare issue.

Key Words: behaviour, dog, grooming, stress, welfare.

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Introduction

In western society, the role of the dog has dramatically changed in the last decades, becoming part of the human family. This implies a greater care of the dog hygiene, both to improve dog welfare and to reduce the risk of anthropozoonoses.

Breed selection has created a number of canine morphologies (Coppinger et al., 1987), adapted to the activity for which they were used in the past, but now requiring special attention from the owner. The coat is certainly one part of the dog body which has been most modified by selection. From the typical lupine coat, quite similar in texture among the several subspecies of wolves (Serpell, 1995) adapted to any climates, many others coats, differing for type and length, have developed. Some of these coats had, in the past, an utility for the animal, defending it from the atmospheric elements and from injury while at work. Nowadays, the work of the dog is limited to a small number of subjects and the coat is usually selected for aesthetic reasons.

Some types of dog fur require special care, such as regular washing and cutting. Owners often prefer to turn to professional groomers working in equipped facilities. Due to the stimuli the dog has to face in such situations (people, dogs, environment, grooming itself etc.), it can be hypothesized that a professional grooming session is a source of stress for the dog.

The aim of this study was to investigate if a professional grooming session can cause stress to the dog.

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Subjects, materials and methods

In the current study 9 dogs, 8 males and 1 female, 8 cross-breeds and 1 Springer Spaniel, aged 1-13 years (63.3±56.0 month old), all short-haired and medium-size, were involved. All dogs were subjected to grooming in June-July 2014, in order to have an environmental temperature as similar as possible. Seven dogs were regularly subjected to grooming, either at the facility where the study was carried out (6) or at other facilities (1). For the remaining two animals, it was the first time they experienced a professional grooming.

Each animal was individually introduced by the experimenter into the room where the grooming was performed, whilst the owner remained outside of the room. The groomer placed the dog on a platform (1.30 x 0.60 m; height 0.70 m) and tied the dog with a leash and a fixed collar to a pole. The dog was left to get used to the new environment for 5 minutes, then the groomer videoed the dog behavior for an additional 5 minute period. After the recording, the dog was moved onto the work table and the same groomer carried out, on each subject, a standardized 30 minutes-grooming session, consisting of: wetting the fur with warm water, soaping the dog with a suitable shampoo, rubbing the fur and rinsing it with warm water, re-soaping, rinsing and repeating the rubbing, and then drying the dog with a hair dryer.

At the end of the procedure the dog was placed again on the platform and videoed for 5 minutes.

Two people observed the videos. One observer measured the duration of potential signs of acute stress in dogs (reported in table 1).

Table 1. List of behaviours indicating stress observed in this study and relative scientific references.

Behavior	References
Autogrooming	Beerda et al., 1998, 1999; Rooney et al., 2007; Rooney et al., 2009
Barking	Beerda et al., 1997; Cannas et al., 2014
Door orientation	Mariti et al., 2013a; 2013b
Excessive barking	Beerda et al., 1998; Schildler & van der Borg, 2004; Rooney et al., 2009
Hypersalivation	Beerda et al., 1997; Dreschel & Granger, 2005
Low activity	Beerda et al., 1997, 1999
Nose licking	Beerda et al., 1997, 1998; Schildler & van der Borg, 2004; Rooney et al., 2009
Other ripetitive activities	Beerda et al., 1997, 1999; Rooney et al., 2009
Panting	Beerda et al., 1997; 1999; Hennessy et al., 1998; Schildler & van der Borg, 2004; Dreschel & Granger, 2005; Rooney et al., 2009
Paw lifting	Beerda et al., 1997, 1998, 1999; Schildler & van der Borg, 2004; Rooney et al., 2007; Rooney et al., 2009
Piloerection	Beerda et al., 1999
Self-scratching	Kotrschal et al., 2009
Shaking	Beerda et al., 1999; Kotrschal et al., 2009
Tail between legs	Kotrschal et al., 2009
Turning around/circling	Beerda et al., 1998, 1999; Schildler & van der Borg, 2004; Rooney et al., 2007
Trembling	Beerda et al., 1999; Dreschel & Granger, 2005; Rooney et al., 2009
Turning head	Schildler & van der Borg, 2004; Rooney et al., 2007
Urination and/or defecation	Beerda et al. 1998, 1999
Yawning	Beerda et al., 1998; Hennessy et al., 1998; Dreschel & Granger, 2005
Whining	Mariti et al., 2013a; 2013b

Table 2. List of behaviors indicating relaxation observed in this study and relative scientific references.

Behavior	References
Dozing	Cozzi et al., 2007
Exploration	Mariti et al., 2013a; 2013b
Resting	Cannas et al., 2014
Wagging	Mariti et al., 2013a

Other behaviors, possibly indicating a state of relaxation, were also analysed (see table 2).

For each of them, the total duration in seconds was evaluated in the 5 minute period before (b.g.) and after the grooming (a.g.). The second observer was a veterinarian behaviorist, who provided a holistic assessment of the dog's stress level and of the dog's arousal in a 0 to 5 scale (0=no stress/no arousal; 5=very stressed/aroused) observing dogs' behavior in the same videos.

The statistical analysis to compare the data before and after the grooming, was performed using the Wilcoxon test ($p<0.05$).

Results

The time (in seconds) spent by dogs showing each analyzed behavior before and after the grooming session and the relative results of the statistical analysis are reported in table 3.

Some behaviors (urination/defecation, trembling, hypersalivation, piloerection and other repetitive activities) were not detected either before or after the grooming.

A statistically significant difference was found only for nose licking, which increased after grooming.

Concerning the behaviorist evaluation, results are summarized in figure 1.

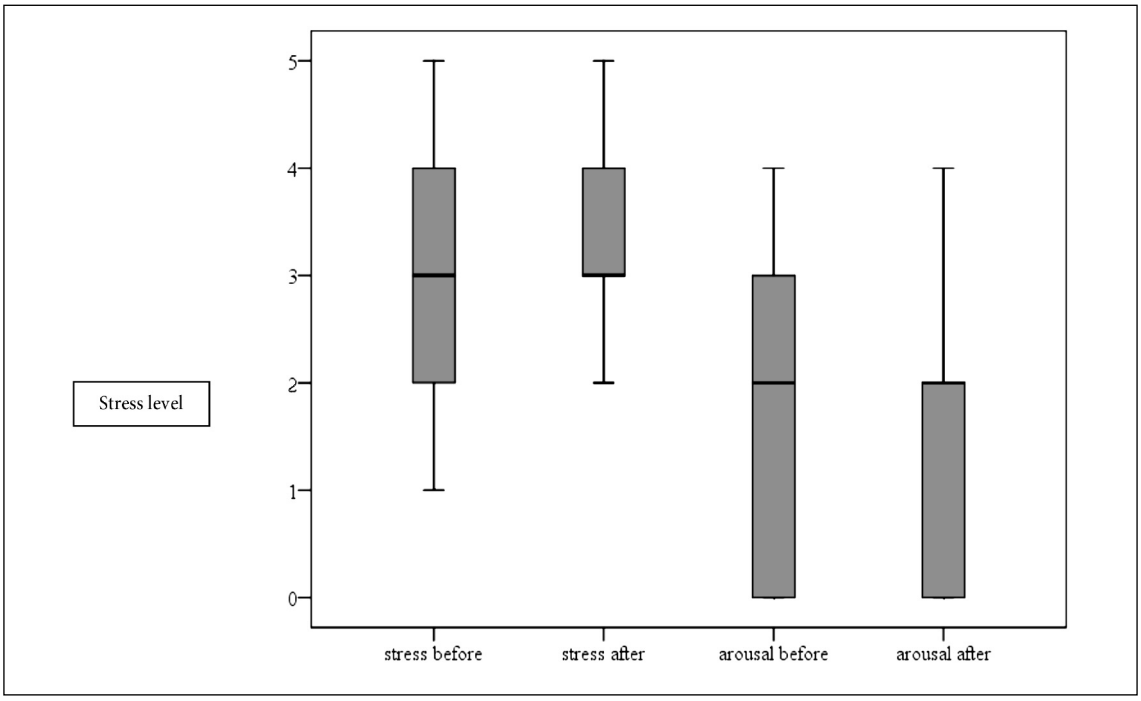

Fig. 1. Level of stress and arousal as assessed by a behaviorist in dogs before and after the grooming session.

Table 3. Duration (s) of each analyzed behavior and results of the statistical analysis comparing before (b.g.) and after (a.g.) the grooming session.

Dog behavior	Time	Median	Min	Max	Statistical results
Barking	b.g.	0	0	96	W=1.000; p=0.317
	a.g.	0	0	139	
Door orientation	b.g.	106	0	231	W=0.420; p=0.674
	a.g.	44	0	237	
Turning head	b.g.	52	24	166	W=0.280; p=0.779
	a.g.	80	0	106	
Low activity	b.g.	45	0	279	W=0.280; p=0.779
	a.g.	89	0	287	
Yawning	b.g.	24	0	84	W=0.734; p=0.463
	a.g.	0	0	97	
Paw lifting	b.g.	0	0	0	W=1.342; p=0.180
	a.g.	0	0	6	
Panting	b.g.	134	0	288	W=1.680; p=0.093
	a.g.	13	0	278	
Turning around/circling	b.g.	0	0	35	W=0.000; p=1.000
	a.g.	0	0	49	
Whining	b.g.	0	0	10	W=0.338; p=0.735
	a.g.	0	0	15	
Nose licking	b.g.	6	2	32	W=-2.52; p=0.012
	a.g.	14	0	32	
Autogrooming	b.g.	0	0	5	W=0.447; p=0.665
	a.g.	0	0	6	
Scratching	b.g.	0	0	0	W=1.000; p=0.317
	a.g.	0	0	13	
Tail between legs	b.g.	0	0	27	W=1.000; p=0.317
	a.g.	0	0	0	
Shaking	b.g.	0	0	5	W=0.535; p=0.593
	a.g.	0	0	15	
Dozing	b.g.	0	0	5	W=1.069; p=0.285
	a.g.	0	0	186	
Exploration	b.g.	99	28	184	W=0.119; p=0.906
	a.g.	151	0	294	
Wagging	b.g.	0	0	137	W=0.730; p=0.465
	a.g.	0	0	74	
Resting	b.g.	0	0	300	W=0.135; p=0.893
	a.g.	0	0	300	

The level of stress (Z=-1.134; p=0.257) and arousal (Z=-1.414; p=0.157) of dogs before and after the grooming session did not statistically differ. However, looking at individual levels of stress before and after the grooming, 5 dogs did not change the score (including the three subjects with the highest scores, corresponding to 4 and 5), 3 dogs increased it and 1 decreased it after the grooming.

Discussion

As opposed to farm and laboratory animals, fewer studies have specifically investigated companion animal welfare (Yeates & Main, 2011), so there is a need for better data on canine welfare issues (CAWC, 2009). As a matter of fact, due to the strong relationship with man, dogs nowadays have to face many situations, some of which may be very stressful (e.g. transport: Mariti et al., 2012b; veterinary clinic: Mills et al., 2006; Mariti et al., submitted) but no research has been carried out on many other possible sources of stress, e.g. professional grooming.

To establish stress and subsequent welfare problems in domestic dogs, behavioural parameters are of special interest, as they may be easily and non-invasively measured (Beerda et al., 1997, 1998). Recently, there has been growing recognition of the potential value of holistic assessments of animals' emotional states (Wemelsfelder et al., 2001; Mills et al., 2006). However, stress in dogs is not always easily detectable, especially for owners, who often underestimate or do not recognize the signs of distress displayed by their pets (Mariti et al., 2012a).

According to both the detailed observation of dogs' behavior and the behaviorist holistic evaluation, dogs who participated in this study showed a similar level of stress and arousal before and after the grooming session and most dogs appeared already stressed before being groomed. This finding is very important, as it means that going to the grooming shop can be stressful for dogs. Similarly to what happens in the veterinary clinic (Mariti et al., submitted), this may affect dog's welfare, especially if the dog is often led to the grooming shop or if the dog anticipates such situation, with the risk that the fear/phobia evolves into anxiety (Overall, 2013, p. 60).

In this study the grooming itself did not seem to increase dog's stress level, but it must be considered that dogs were already stressed when the grooming was performed, so conclusions drawn cannot be regarded as definitive. As a matter of fact, when a subject is stressed the application of a stimulus can reduce (pleasant), increase (very unpleasant) or not modify his/her level of stress. The higher number of dogs, who were scored higher by the behaviorist for the stress level after the grooming, suggests that the grooming was mildly stressful for the dogs, but not enough to lead to a statistically significant increase in the level of stress. In other words, the previous activation of the sympathetic nervous system may have affected the statistical results and the stimulus applied, although mildly stressful, may not be sufficient for a further activation; the same stimulus, applied in a non-stressed animal, may lead to different findings. Therefore, more research is needed to better investigate if the grooming itself is stressful for dogs, and which factors may be involved.

Theoretically, the possible sources of stress for dogs in a grooming shop are numerous. For instance, dogs can feel uncomfortable for the separation from attachment figures, especially in an unfamiliar environment (Hennessy, 1997; Mariti et al., 2013b), for the unpredictability of external events (Muir & Pifster, 1987), for the handling and restraint made by strangers (Hennessy et al., 1998), and/or for the grooming itself. Moreover, in an artificial environment such as the grooming shop is, there are possible acoustic, visual and social stressful stimuli. Acoustic stress is primarily due to the use of devices such as the hair dryer and fur clippers. The olfactory stressors, such as the odor cues and pheromones released by other dogs during the grooming may play a role in alarming the animal. Stressful visual stimuli can be attributed to the proximity to other dogs or people, when proxemics is not respected or when the dog has not been adequately socialized.

All of these factors may explain the state of stress shown by dogs in the groomer's shop before the grooming session started: owners and groomers could work on all of them in order to reduce dogs' level of stress in the grooming shop.

Concerning the detailed observation of dogs' behavior before and after the grooming, the increase of nose licking could be related to a state of stress or to other reasons: e.g. we cannot exclude that the grooming caused the dryness of the nose and dogs licked this part to hydrate it. However, as explained before, no conclusions can be drawn by this study about the possible stress induced by a professional grooming session.

The ability of owners to recognize the behavioral signs of stress is important, as it permits the animal to avoid related welfare problems (Kerswell et al., 2009), and it favors a rapid recovery of psychophysical homeostasis by interrupting the progression to overstress and distress. Veterinarians and behaviorists should teach owners to look at the whole body language of the dog and to properly assess (and possibly intervene in) dog welfare (Mariti et al., 2012b). Moreover, owners are responsible for getting dogs used to situations that might occur in their life (Gazzano et al., 2008), such as those found in a grooming shop.

On their part, groomers should be aware that any dog, regardless of previous experiences or stress felt in other circumstances, can be stressed in their facility: factors such as a lack of familiarity with the place, the kind of handling, noises etc. (and, in real-life situations, conspecifics and strangers) can be stressful for some dogs (Mariti et al., submitted). Groomers should also know how their behavior, facility etc. can become dog friendly (see e.g. Herron & Shreyer, 2014).

Conclusions

The findings of this study suggest that the grooming shop can be stressful for dogs for all the time dogs stay in it, since the arrival until the exit. Owners and groomers should be aware of this and know how to reduce such stress, which may become a welfare issue.

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Valutazione del benessere del cane prima e dopo una sessione professionale di toelettatura

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Sintesi

Alcuni cani possiedono un mantello che richiede cure particolari quali lavaggi e tagli regolari. I proprietari preferiscono spesso rivolgersi a toelettatori professionisti in strutture specializzate.

Lo scopo di questo studio è stato quello di verificare se una sessione professionale di toelettatura può essere causa di stress per il cane.

Nove cani sono stati sottoposti ad una seduta di toelettatura di 30 minuti. Ogni animale è stato videoripreso prima e dopo la tolettatura per 5 minuti e tutti i video sono stati analizzati per misurare la durata di potenziali segni di stress acuto nei cani, riportati in tabella 1.

Tab. 1. Elenco di comportamenti considerati segni di stress nel cane.

Comportamento	**Bibliografia**
Autogrooming	Beerda et al., 1998, 1999; Rooney et al., 2007; Rooney et al., 2009
Abbaiare	Beerda et al., 1997; Cannas et al., 2014
Orientamento verso la porta	Mariti et al., 2013a; 2013b
Abbaiare eccessivamente	Beerda et al., 1998; Schildler & van der Borg, 2004; Rooney et al., 2009
Ipersalivazione	Beerda et al., 1997; Dreschel & Granger, 2005
Attività ridotta	Beerda et al., 1997, 1999
Leccamento del tartufo	Beerda et al., 1997, 1998; Schildler & van der Borg, 2004; Rooney et al., 2009
Altre attività ripetitive	Beerda et al., 1997, 1999; Rooney et al., 2009
Ansimare	Beerda et al., 1997; 1999; Hennessy et al., 1998; Schildler & van der Borg, 2004; Dreschel & Granger, 2005; Rooney et al., 2009
Sollevare la zampa	Beerda et al., 1997, 1998, 1999; Schildler & van der Borg, 2004; Rooney et al., 2007; Rooney et al., 2009
Piloerezione	Beerda et al., 1999
Grattarsi	Kotrschal et al., 2009

Comportamento	Bibliografia
Scuotersi	Beerda et al., 1999; Kotrschal et al., 2009
Coda tra le zampe	Kotrschal et al., 2009
Girare in tondo	Beerda et al., 1998, 1999; Schildler & van der Borg, 2004; Rooney et al., 2007
Tremare	Beerda et al., 1999; Dreschel & Granger, 2005; Rooney et al., 2009
Girare la testa	Schildler & van der Borg, 2004; Rooney et al., 2007
Urinazione e/o defecazione	Beerda et al. 1998, 1999
Uggiolare	Beerda et al., 1998; Hennessy et al., 1998; Dreschel & Granger, 2005
Guaire	Mariti et al., 2013a; 2013b

Inoltre un veterinario esperto in comportamento ha realizzato una valutazione complessiva del livello di stress del cane, su una scala da 0 a 5.

I risultati della ricerca dimostrano che non vi sono differenze statisticamente significative per quanto riguarda il livello di stress e la durata dei segnali di stress valutati prima e dopo la toelettatura. Solo il comportamento di "leccare il tartufo" è stato espresso più a luno, in modo statisticamente significativo (W=-2,52; p=0,012) dopo la toelettatura.

La maggior parte dei cani è risultata già stressata prima della seduta di toelettatura e, per questo motivo, saranno necessarie ulteriori ricerche per capirne le ragioni.