The Evolution of Canine Stress Physiology in Professional Dog Grooming

Anthropomorphism, Chronic Stress Activation, and the Emerging Welfare Crisis in Professional Dog Grooming

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a.Executive Summary

The Dog Grooming profession is undergoing a fast unfolding crisis of welfare and occupational health that is largely attributable to significant shifts in the emotional regulation, stress physiology and human-dog relational dynamics of dogs. Dogs have evolved into a loving, important part of the family, a companion, and a source of emotional support over the past few decades, especially since the COVID-19 pandemic. This change in society has occurred alongside increased exposure to chronic stress, overstimulation in the environment, social instability, human emotional contagion, and changes in companion dog developmental experiences.

This white paper proposes that many dog grooming models that have been developed in the past were based on the ideas of the dogs of the day, which are neurologically and physiologically distinct from their modern counterparts. Today's dogs are more likely to exhibit increased sympathetic nervous system activity, chronic exposure to cortisol, increased sensorial sensitivity, decreased stress recovery ability, attachment dysfunction and emotional instability. The physiological changes are manifesting more and more in professional Dog Grooming environments, in the form of increasing incidents of fear-based aggression, panic responses, handling intolerance, emotional shutdown, bite incidents, Dog Grooming related injuries or fatalities and other behavioral unpredictabilities.

This paper will explore the cause and effect of the need for a redefinition of traditional Dog Grooming systems that many base on production efficiency, restraint-based handling, high sensory stimulation and education for cosmetics. These methods were created when the majority of dogs exhibited greater environmental resilience and less activation of the nervous system under chronic stress, but today’s dogs often cannot just be treated with an emotionally neutral, nervous-system unaware, and regulation-based method.

The paper examines the biological basis and links between environmental factors, activation of the autonomic nervous system, hormonal chains of stress, and behavioural responses, provided through a framework of an interdisciplinary approach that combines the perspectives of stress physiology, neuroscience, neuroplasticity, attachment theory, psychoneuroendocrinology,

behavioural science, and observation in professional Dog Grooming settings. Special emphasis is placed on the effects of chronic repeated stress exposure on reshaping neuropathways, decreasing sensory thresholds, changing the predictability of behaviors, and causing chronic autonomic dysregulation in dogs.

The analysis also covers the increasing impact that this occupation has on growers. Extended contact with emotionally dysregulated dogs, coupled with physical strain, economic pressures, production pressures, compassion fatigue and risk of injury at work, have all resulted in significant stress levels.

The results indicate the future of professional Dog Grooming could be a bigger interdisciplinary shift to educate groomers not just to be cosmetic coat-care experts, but as more comprehensive and integrated pet professionals with a basic understanding of canine behaviour, stress physiology, nutrition, welfare science, emotional regulation and preventive health observation within a more holistic and comprehensive 360-degree model of canine care. Understanding these changes could be fundamental to the enhancement of dog welfare and safety for dogs and others, and to the future sustainability, professionalism and ethical development of the professional Dog Grooming industry as a whole.

1. Abstract

In the past few decades, the social, environmental and psychological environment in which humans live has undergone significant change, which has had a profound impact on the emotional and physiological conditions of domestic dogs. Companion dogs are performing a wide range of functions in addition to the familiar role of dog as dog, including emotional support, attachment regulation and integration of the surrogate family. At the same time, questions have been raised about the measurable shifts in canine stress physiology, behavioral regulation, and emotional resilience that have occurred due to rapid urbanization, decreased environmental stimulation, changing social structures, digital lifestyles, stressors associated with being an owner, and behavioral changes from the pandemic.In parallel, there are measurable changes to canine stress physiology, emotional resilience, and behavioral regulation that have occurred as a result of rapid urbanization, decreased environmental stimulation,

changing social structures, digital lifestyles, stressors associated with being an owner, and behavioral changes due to the pandemic. As a result of these changes, more and more Dog Groomers are experiencing unprecedented rates of fear-based behaviors, autonomic dysregulation, bite issues, emotional instability, handling intolerance, groomer burn out and injuries or death related to grooming.

In this white paper, the author reviews the stress physiology, neurobiology, attachment theory, psychoneuroendocrinology, behaviour and professional Dog Grooming field observations to investigate the changing neurophysiological state of modern dogs in an interdisciplinary manner. Based on the paper, they believe that dogs today are neurologically and emotionally different than generations past as a result of the cumulative chronic stress and the new relational dynamics between humans and dogs. At the same time, a lot of the Dog Grooming Profession still functions on models.Meanwhile, most of the business Dog Grooming market still adheres to models.

Created for historically different dog populations that are more resilient to the environment, have less chronic activation of cortisol and are less emotionally dependent on humans.

Analysis examines the biological mechanisms underlying the association of environmental stimuli, activation of the autonomic nervous system, hormonal stress pathways, neuroplastic adaptation, and behavioral expression. Special focus is placed on the contributions of anthropomorphic concepts, emotional contagion, homeostatic regulation and predictive nervous system processing to modern canine behavior. The paper also examines the potential to exacerbate stress physiology for dogs that are sensitive to these systems of restraint-based handling, high stimulation grooming, business models based on production, and some behavioral education.

The results imply a wider interdisciplinary transformation for the future of the profession of Dog Groomer, as the dog groomer should not only be a cosmetic coat care specialist, but also a comprehensive, 360-degree dog care specialist with basic knowledge of canine behavior, stress physiology, nutrition, welfare science, emotional regulation and preventive health observation.

Keywords

Canine stress physiology; Dog Grooming; anthropomorphism; autonomic nervous system; neuroplasticity; cortisol; canine behavior; chronic stress; attachment theory; animal welfare

2. Introduction

The domestic dog experienced one of the fastest social role changes in recent human history. Traditionally, dogs have fulfilled roles that involve hunting, guarding, herding, pest control or outdoor companionship, but in today's world, companion dogs live in environments that are increasingly emotionally permeable among humans. Dogs are important attachment persons, emotional support providers, surrogate children and a prime source of relational comfort in many households. This shift has had a profoundly impact on the social function of the dog, but it has also affected the physiological and neurological settings in which canine nervous systems function and develop.

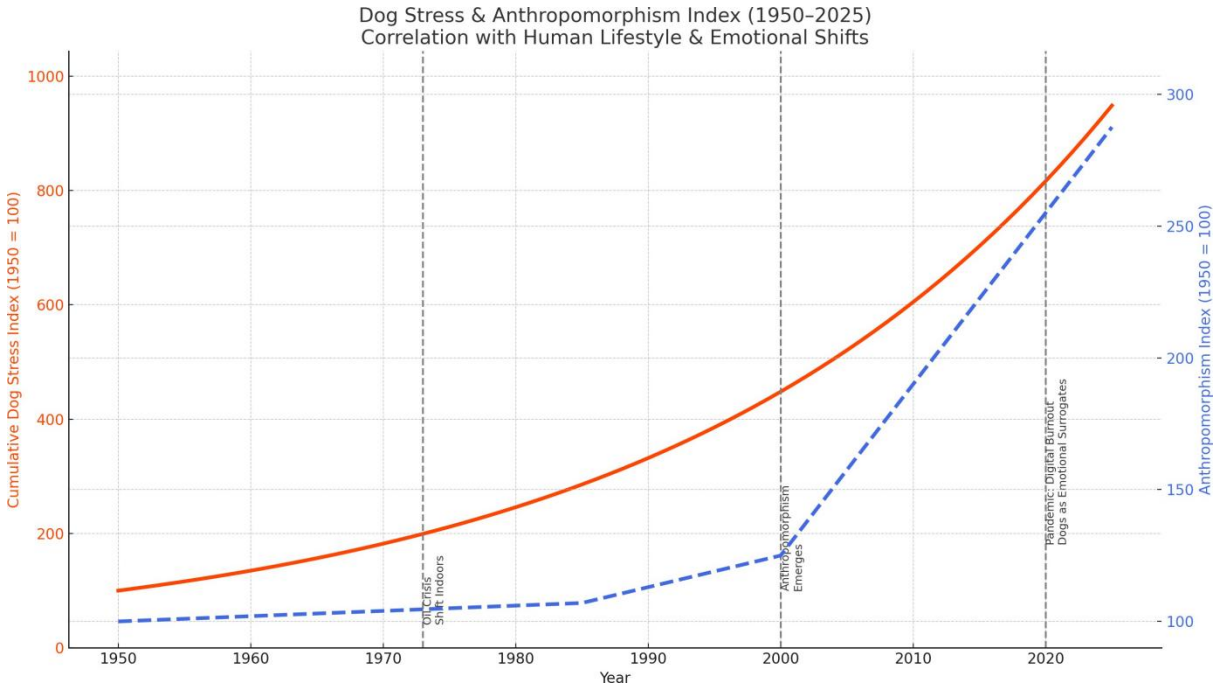
Over the last years, more research has emerged that shows companion animals are extremely attuned to human emotions, environmental changes, social surroundings, and prolonged stress (Horowitz, 2009; Nagasawa et al., 2015). Dogs constantly co-regulate emotionally with humans through behavior, neuroendocrine, environment, vocal tone and physical.

In the workplace of Dog Groomers, these changes are now more apparent. Dog Groomers across the industry have noted that dogs brought in for them to provide basic grooming are exhibiting significant behavioral instability, fear-based aggression, noise sensitivity, panic reactions, intolerance to being handled, emotional shutdown, and unpredictability. At the same time, the profession itself is experiencing increasing rates of job burnout, compassion fatigue, physical injuries, emotional fatigue and loss of staff. Claims of injuries and deaths also have led to increased health and safety concerns over existing industry practices, methods of restraint, salon environments, and educational protocols for dogs.

Notwithstanding these new developments, there are significant misconceptions in the scientific and professional dog grooming communities about the relationship between the physiology of stress in the modern dog and the modern dog grooming industry. The current dog grooming education is often focused primarily on technical skills of grooming the coat with relatively little focus on autonomic nervous system regulation, trauma informed handling, stress physiology or emotional safety principles.

Therefore, this white paper is intended to investigate the changing dynamics of stress physiology in today's modern dogs and its relevance to the professional Dog Groomer. To that end, this paper seeks to examine the potential for the reconfiguration of canine emotional regulation as a result of chronic environmental stress, anthropomorphic relational structures, changed attachment patterns, neuroplastic adaptation, and post-pandemic social changes, as well as the potential impact that these may be having on canine emotional regulation and on challenges within the industry. The paper suggests that the Dog Grooming profession may need significant philosophical and structural change to keep up with the neurobiology of today's dog, due to the application of modern neuroscience, psychophysiology, behavioral sciences and observations from professional Dog Grooming practices in the field.

Figue 1



The relationship between anthropomorphism and the gradual increase in the physiology of stress in companion animals from 1950 to 2025 is proposed to be longitudinal, as shown in Figure 1. The red curve shows how chronic stress load is expected to increase in domestic dogs, and the blue curve traces the increasing anthropomorphic integration of dogs into human family and emotional life. The chart identifies a number of important changing moments in society, such as the move to companion dogs mostly kept indoors in the 1970s, the rapid rise of emotional anthropomorphism in the early 2000s and increased emotional dependency and social substitution after COVID-19. Although it is conceptual, it provides a visual model that shows how changes over time in human lifestyle, emotional attachment, urbanization, social isolation and chronic psychological stress could have shaped the regulation of the canine nervous system and emotional resilience over time. The dual acceleration seen in both indices corroborates the main hypothesis of the paper, that the dogs' environment is becoming more emotionally complex and chronically higher in autonomic activation, which may be a factor in the growing number of behavioral and welfare problems seen across the board in professional Dog Grooming.

3.0 Literature Review and Background

Stress physiology was first more systematically defined in the work of Hans Selye (1956): Stress is the non-specific physiological reaction of the body to an environmental stress. Selye's General Adaptation Syndrome provided the basis for understanding the systemic dysfunction that occurs as a result of chronic exposure to physiological stress. These ideas were further developed in later research, e.g., in the theory of homeostatic regulation by Cannon (1932), who focused on the organism's ongoing efforts to maintain homeostasis in the face of environmental variation.

The study of chronic stress effects on neurological, endocrine, immune and behavioral systems has been greatly enhanced by modern psychoneuroendocrinology. McEwen (1998) first coined the term allostatic load, referring to the accumulation of physiological strain and dysfunction across various systems of the body due to chronic activation of systems involved in the stress response. Exposure to high cortisol has been linked to changes in emotional control, heightened vigilance, immune suppression, gastrointestinal issues, cardiovascular stress, cognitive inflexibility and behavioral instability in several mammalian species (Sapolsky, 2004).

In the field of canine behavioural science, more has been focused on how human-dog attachment dynamics and emotional contagion affect each other. In reviewing the literature, it will become clear that Bowlby's attachment theory (1969) developed to analyze the human infant–caregiver attachments has expanded its use to examine the emotional connection between domestic dogs and their human caregivers, as evidence suggests that some aspects of secure-base behavior in human children may also describe the human-dog bond (Topál et al., 1998). Studies have shown that dogs can be synchronised with human emotions, such as cortisol levels (Sundman et al., 2019) and behavioural synchrony (mimicing).

Anthropomorphism has been argued to enhance emotional relationships and empathy for animals, but at the same time it can make it easy for humans to misread and misunderstand the

ways in which different species communicate (Serpell, 2003). Inconsistencies and changes in boundaries, overprotection, emotional enmeshment, and limited opportunities for resilience-building experiences can all inadvertently lead to the activation of chronic stress in dogs, as they have less opportunity in these situations to engage in adaptive coping or environmental regulation.

These trends continued and were further exacerbated by the COVID-19 pandemic. When the world was in lockdown, millions of dogs were never separated from humans and had less contact with other people and pets, different schedules and routines, and less environmental change and increases in owner anxiety. According to emerging reports of behaviour, there is a marked rise in separation and/or related disorders, fear reactions, social instability and behavioural dysregulation following the reintegration into normal societal conditions after the pandemic (Overall, 2020).

In professional Dog Grooming literature, however, study of these greater neurophysiological changes is limited. Historically, industry education has developed in a production approach focused on efficiency, speed, coat styling and flow in the process. Although some concepts of behaviour are mentioned in some of the new methods of dog grooming training, the systematic integration of the knowledge and concepts of neuroscience, autonomic regulation theory, trauma- and stress-informed handling and communication, and the development of handling and communication skills in general are not yet part of the education in most styles of dog grooming.

Industry conflicts and divisions often position behavioural escalation as a result of insufficient training, poor breeding, lack of owner discipline or lowered standards. These factors can play a role, but they may not account for the full picture of neurophysiological and societal factors that can impact a dog's emotional regulation. There is an increasing body of evidence that chronic stress exposure changes the way the autonomic nervous system works, the sensory threshold, and the predictability of behavior, thus necessitating more holistic, interdisciplinary views of

contemporary dog behavior.

4.0 Theoretical Framework

The paper adopts a multidisciplinary theoretical approach, which combines the theories of homeostasis, allostatic load, neuroplasticity, attachment theory, predictive processing in neuroscience, and autonomic nervous system-regulation.

Homeostasis is that organism's response to keep its internal physiological functions stable despite changes in the external environment (Cannon, 1932). Today's models do acknowledge that emotional control, predictability of social interactions, security of attachment and environmental stability are also strongly connected to homeostatic processes.

The idea of allostasis is a refinement of the concept, with an added emphasis on the fact that adaptation to chronic stress takes time to happen and involves continual physiological changes, leading to cumulative biological strain over time (McEwen, 1998). Long-term activation of stress-response systems can eventually alter the normal functioning of the autonomic regulation system itself.

Neuroplasticity is the ability of the nervous system to restructure itself both structurally and functionally based on repeated experience (Doidge, 2007). Emotional states that are repeated reinforce specific neural pathways, which eventually become automatic and trigger behavioral and physiological reactions.

Predictive processing models also propose that the brain continually builds up predictive models of the world based on previous experiences (Friston, 2010). Organisms are then often affected by present stimuli, and also by expectations that have been stored with the stimuli in the past.

Lastly, Polyvagal Theory (Porges, 2011) offers a valuable framework for understanding how states of the autonomic nervous system regulate emotional responses, social engagement, immobilizing responses, defensive reactions, and physiological perceptions of safety in humans and animals.

5.0 Problem Statement

This paper examines the current mismatch between the neurophysiological state of dogs today, and the structures of professional Dog Grooming in the present day.

Numerous grooming techniques, educational methods, salon layouts, restrain methods, scheduling systems and handling philosophies have been developed for historically unique dogs who have greater environmental tolerance, less chronic stress activation, and less human dependency.

Industry models and approaches may therefore be inadequate as they focus more on procedural efficiency and physical compliance, rather than autonomic regulation, emotional safety and chronic stress physiology. This disparity is responsible for higher bite rates, wounding of dog groomers, emotional exhaustion, compassion fatigue, handling intolerance, and even preventable dog welfare issues.

The impact is not just felt in individual salons, but across the whole of the profession, and on the sustainability of the occupation, insurance risk, public trust, retention of the workforce, dog welfare and the professional identity of Dog Grooming.

The methodology and analytical approach will be explained.A methodology and analytical approach will be explained.

Science literature from the fields of neuroscience, psychophysiology, behavioral science, endocrinology, attachment theory and animal welfare has been included in the analysis across all major sources.

Proper professional dog grooming facilities. Historical comparisons are made to assess changes

in canine behaviour and stress tolerance over time, and systems analysis is used to explore the interaction that occurs between changes in society, human emotional responses, canine physiology and the professional care environment.

Instead of using just one experimental set of data, this paper is based on a conceptual synthesis model designed to help discover all of the emerging patterns, which will be investigated in the future.

3.0 Main Analysis

3.1 The Transformation of the Human-Dog Relationship

The contemporary dog endures in a very emotionally charged relationship system which is altogether unlike the prehistoric canine-human relationship system. Modern dogs are typically viewed not only as pets in the home but as emotionally central family members who are expected to be a source of comfort, companionship, emotional control and relationship satisfaction. This transition has created more emotional bonding with the dog and the dog-human relational field has absorbed more human psychological stress.

Dogs have a very strong sense of human emotion. It has been shown that dogs are always looking at human facial expression, tone of voice, body language, physiological state, and consistency of emotion in human social situations (Horowitz, 2009). Dogs can be physiologically "entrained" to an emotionally "entrained" human environment through chronic exposure. A study by Sundman et al. (2019) showed that owner anxiety is correlated with increased cortisol synchronization in dogs, leading to the conclusion that there is significant bidirectional neuroendocrine influence in the attachment relationship.

Canine nervous systems can thus be increasingly vulnerable to emotional instability within an ecosystem that is increasingly out of sync with their evolutionary context as humans experience unprecedented levels of stress caused by economic insecurity, social polarisation, digital overstimulation, loneliness and chronic psychological stress.

The autonomic system is constantly checking safety in the environment by processing sensory input and predicting in the nervous system. If stimuli are perceived as threatening, uncertain, overstimulating or unpredictable, activation of the sympathetic nervous system and HPA-axis begins the classical stress response of release of adrenaline, noradrenaline and cortisol into the blood (Sapolsky, 2004).

With repeated activation, over time, the corresponding neurological pathways become stronger due to neuroplastic adaptation. Repeatedly firing together, wires together, and lowering the activation threshold for future activation (Hebb, 1949). This results in a hypersensitive nervous system that can trigger autonomic activation states in chronically stressed dogs in response to relatively little environmental stimuli.

It is very relevant in professional Dog Grooming environments because of the many Dog Grooming stimuli that directly stimulate the sensitised sensory systems through chronic stress exposure. Previously conditioned threat associations may elicit disproportionate autonomic reactions to exposure to the noise of the dryer or restraint, confinement, barking, unfamiliar handling, positioning, vibrations, water exposure, or rapid environmental changes.

Importantly, not all stress reactions are expressions of overt aggression. More common, many dogs go into 'freeze' states which are mediated through dorsal vagal autonomic pathways linked to some shutdown, dissociation, learned helplessness or behavioral collapse (Porges, 2011). These dogs can look good, but feel terrible inside.

3.3 The COVID-19 Effect and Post-Pandemic Behavioral Dysregulation

Without doubt, the COVID-19 pandemic was among the greatest unintentionally conditioned behaviour events to impact companion dogs in modern times. Lockdown periods led to dogs being in unparalleled close proximity to human caregivers, as well as reduced social variation, reduced environmental exposure, disrupted routines and increased human emotional anxiety.

Many dogs came to view humans as their whole emotional world. During post-pandemic societal reintegration, many dogs were left with extended periods of isolation, higher unpredictability, social contact and professional care settings with inadequate adaptation preparation.

Professional Dog Groomers were some of the first occupations to directly experience the behavioral ramifications. Observations in the industry have been describing an increased separation shortage and panic behaviours, noise intolerance, handling intolerance, social reactivity and decreased emotional recovery capacity in the post-pandemic generation of dogs.

3.4 Increase in injuries and deaths among professional dog groomers after the COVID-19 Pandemic

Emerging industry and insurance trends observed in recent years since Covid and reporting of incidents suggest that there is likely to be a significant uptick in serious incidents where dogs are concerned and that injury-related, escape-related, and fatality related claims activity may be on the rise in professional Dog Grooming settings.

have increased by more than 300% compared to pre-COVID levels. Whilst there are not many standardized nationwide datasets available that only reflect incidents where dogs have been involved in professional Dog Grooming, data from the insurance market more broadly show that overall there has been a significant rise in dog-related liability exposures, dog-related claim severity and occupational risk in the animal-care related industries (Insurance Information Institute, 2026). As the profession is now reporting more consistently, the results are that the profession may be witnessing a meaningful increase in the amount of behaviour that is unpredictable, stressful medical emergencies and job related safety concerns following the COVID-19 Pandemic.

There are several interacting neurophysiological and environmental factors that may be used to

account for the observed increase. In extended periods of pandemic lockdown, many dogs had significantly different developmental conditions, which included constant human proximity, less access to novel environments, less separation conditioning, a lack of socialization, and heightened exposure to chronically stressed human caregivers. Studies have found that dogs' cortisol levels can be coupled with human stress, suggesting a physiological co-regulation, and they can also show some degree of synchronised stress responses and interact in a coordinated way via the autonomic nervous system (Sundman et al., 2019). At the same time, having less resilience-building opportunities that are required for adaptive stress regulation and emotional flexibility throughout the critical developmental periods may have been caused by chronic environmental predictability and social restriction (Overall, 2020).

On the neurobiological level, exposure to chronic emotional stress and environmental restriction can lead to greater sympathetic nervous system responses, increased hypothalamic-pituitary-adrenal (HPA) axis reactivity, diminished ability to recover from stress, and lower thresholds for autonomic dysfunction (McEwen, 1998; Sapolsky, 2004). Many dogs were suddenly reintroduced to the highly stimulating professional Dog Grooming environments of restraint, dryer vibration, barking, unknown handlers, transportation, forced handling, and procedural unpredictability as pandemic restrictions lifted. Neurologically sensitive dogs may be at risk of developing panic response, defending themselves, medical emergencies, respiratory dysfunction, overheating, autonomic dysfunction or collapse due to these conditions, if they are beyond their ability to regulate themselves.

Meanwhile, professionals who worked in jobs impacted by staffing shortages, greater workload requirements, emotional burnout, financial strain, and occupational burnout began to return to their workplaces. Further, from affective neuroscience and emotional contagion research, there are social and physiological co-regulation mechanisms that can also affect canine autonomic states as a result of dysregulated human nervous system processes (Porges, 2011). Together these interdependent biological, behavioral, environmental and occupational factors could partly account for the significant increase in serious incidents that are now more commonly seen across the professional Dog Grooming industry in the post-pandemic world.

Two of the most critical medical emergencies with professional Dog Grooming-related deaths observed to date are stress-induced cardiovascular collapse (cardiac arrest) and acute respiratory compromise that may be related to pulmonary or air embolic events. Importantly, accumulating scientific evidence from stress physiology and autonomic neuroscience indicate that, alone, severe psychological stress can cause significant physiological destabilization that can trigger life-threatening medical events in vulnerable animals.

If a dog feels very frightened, restrained, panicked, sensory overloaded or unable to escape, the autonomic nervous system quickly activates in response to survival, known as the fight-or-flight response. This involves the release of the catecholamines (adrenaline and noradrenaline) and activation of the hypothalamic-pituitary-adrenal (HPA) axis with a subsequent release of cortisol (Sapolsky, 2004). These stress hormones have a profound effect on increasing heart rate, blood pressure, respiratory rate, muscle tension, oxygen demand and workload of the cardiovascular system. For dogs with other cardiac diseases, although often overlooked, these intense physiological responses can exhaust the body's compensation, and lead to arrhythmias, circulatory collapse, respiratory crisis, hyperthermia, or cardiac arrest.

Stress can indirectly play a role in respiratory emergencies and pulmonary compromise by causing panting, restriction of airflow, overheating, panic-induced over-breathing, and/or faulty gas exchange. In severe cases of sympathetic overactivation, the dog may make a dramatic change in respiratory effort and decreased autonomic control of breathing. Physiological destabilization can rapidly progress in very stressed situations particularly when combined with restraint, dryers and long handling times, and/or existing respiratory sensitivity. The effect of acute stress on excessive autonomic activation and systemic inflammatory response has long been known to be a precipitating factor in fatal cardiovascular and respiratory events in susceptible animals (McEwen, 1998; Porges, 2011).

The professional Dog Grooming environment can thus figure more than just a cosmetics care factor for some vulnerable dogs from a neurophysiological perspective. For neurologically

sensitized or medically compromised animals, stress responses and fear can be biologically significant medical risk factors that can impact cardiovascular stability, respiratory regulation, thermoregulation and overall animal survival capacity during Dog Grooming procedures.

3.5 Dog Groomer Burnout and Occupational Nervous System Overload

Professionals, as well as their dogs, are constantly activated in the autonomic system and modern Dog Groomers are working in such an environment. Cumulative allostatic load is very high when animals are repeatedly exposed to fearful, dysregulated and unpredictable animals, plus the production pressures, financial pressures, physical demands, emotional labour, injury risk and the expectations of the clients.

Occupational burnout, chronic musculoskeletal strain, depersonalization, emotional exhaustion and compassions fatigue are more prevalent across the industry. Some dog groomers report enduring hypervigilance, anticipatory stress, emotional numbness, and nervous system dysregulation much like that of other professions involving high levels of stress.

Important to note here is that some of the abnormalities in human nervous systems can also affect dogs in other ways, such as emotional contagion and physiological co-regulation. This means that the dog grooming situation can sometimes be a vicious cycle that reinforces autonomic activation state in both humans and dogs.

3.6 Industry structures and the need for paradigm shift

Some modern dog grooming systems still focus on getting the job done quickly, efficiently and under control through restraint techniques from past ages of the industry. But, dogs with a fragile nervous system may become more dependent on different pacing, predictable environments, sensory modulation, emotional regulation support, and individualized handling that do not fit a high volume production system.

The growing evidence indicates that future Dog Grooming environments may need significant redesign efforts and will include the following:

- reduced sensory overload
- one-dog-at-a-time scheduling
- trauma-informed handling
- nervous-system-aware education
- low-restraint methodologies
- behavioral literacy
- predictable procedural rituals
- interdisciplinary collaboration

The professional identity of Dog Grooming may, therefore, be evolving to more closely mirror the provision of integrated emotional and physiological care instead of service delivery of cosmetics.

4.0 Discussion

The information presented in this paper indicates that many of the current difficulties in Professional Dog Grooming can be symptoms of a deeper shift in the neurophysiology and society. Today's dogs are growing up in a context that encompasses chronic emotional complexity, anthropomorphic relational orientations, sensory overstimulation, social instability and increased exposure to human stress factors. These circumstances have a basic impact on the development of the autonomous nervous system, stress physiology, behavioral control and emotional resistance.

Opposition to such views can arise from several factors such as economic considerations, traditional industry identity, pragmatic considerations of industry operation, resistance to using behavioral science in practice and fears of lost productivity. Additionally, empirical studies that specifically investigate the relationship between chronic canine stress physiology and a

professional dog grooming setting are scarce.

Despite this, the rise of observations in the field, as well as occupational burnout, behavioural instability and welfare issues, indicate that the industry as a whole is nearing physiological limits. The profession may consequently be presented with a critical choice between operating in the way it has been traditionally done or moving towards a new understanding of the brain.

5.0 Recommendations

Educational requirements, salon settings, and handling practices should incorporate “nerves and trauma” concepts into the professional Dog Grooming industry.

5.1 Recommended strategies include:

- Increased education on stress physiology and dog behaviour.
- Decreased use of seatbelts and belts
- Incorporating less stimulating environments in salons.
- Incorporation of built-in routine structures
- Establishment of occupational mental health support systems for groomers.
- stress biomarker studies in grooming settings
- The revision of the certification and continuing education requirements.

In addition, education in the real needs of dogs, how to manage their emotions and responsible anthropomorphic attitudes can help lower the exposure to chronic stress in domestic environments.

6.0 Future Research

Further empirical research is needed examining:

- Levels of cortisol in grooming areas
- Physiological reactions to dog grooming procedures.
- Association of behavioral changes in companion dogs after the pandemic.
- Occupational stress physiology in Dog Groomers
- The long-term effects of restraint methodologies.
- Comparisons of welfare outcomes for the two models of grooming.
- Canis-to-human emotional contagion and transferred emotions.
- The long-term anthropomorphic dependence effects on the nervous system.

Future insights might be gained from longitudinal interdisciplinary research that combines neuroscience, endocrinology, animal welfare science and professional care environments.

7.0 Conclusion

There seems to be a dramatic change in the mood and physiology of today's dogs in this fast-changing society of humans, where the emotions and social structures of the human family are rapidly evolving. The long-term impact of stress on dogs, disruptions in bonding, anthropomorphic influences, and the changing behaviors after the pandemic, could be changing the way dogs think about and process stress.

At the same time, Dog Grooming is still very much in use and is based on structures created for historically different breeds of dogs. This disparity increasingly becomes apparent in terms of behavioral instability, occupational burnout, risk of injury, emotional dysregulations, and welfare issues for both dogs and professionals.

The use of autonomic nervous system regulation, neuroplasticity, emotional co-regulation and

chronic stress physiology could thus be critical to the future development of Dog Grooming Professionals. This profession is at a pivotal moment of paradigm shift, with emotional safety, nervous-system literacy, and interdisciplinary caring becoming as much or more significant as technical grooming skills.

The future of the welfare of dogs and dog groomers could depend on the level of understanding and adjustment that the dog industry pays to the neurobiology of the modern dog.

References

1. Bear, M. F., Connors, B. W., & Paradiso, M. A. (2020). *Neuroscience: Exploring the Brain* (4th ed.). Wolters Kluwer.
2. Bowlby, J. (1969). *Attachment and Loss: Vol. 1. Attachment*. Basic Books.
3. Cannon, W. B. (1932). *The Wisdom of the Body*. W.W. Norton & Company.
4. Doidge, N. (2007). *The Brain That Changes Itself*. Viking Press.
5. Friston, K. (2010). The free-energy principle: A unified brain theory? *Nature Reviews Neuroscience*, 11(2), 127–138.
6. Hebb, D. O. (1949). *The Organization of Behavior*. Wiley.
7. Horowitz, A. (2009). *Inside of a Dog*. Scribner.
8. LeDoux, J. (1996). *The Emotional Brain*. Simon & Schuster.
9. McEwen, B. S. (1998). Protective and damaging effects of stress mediators. *New England Journal of Medicine*, 338(3), 171–179.
10. Nagasawa, M., Mitsui, S., En, S., Ohtani, N., Ohta, M., Sakuma, Y., Onaka, T., & Kikusui, T. (2015). Oxytocin-gaze positive loop and the coevolution of human-dog bonds. *Science*, 348(6232), 333–336.
11. Overall, K. L. (2020). Behavioral consequences of social restriction in companion dogs during COVID-19 conditions. *Journal of Veterinary Behavior*, 40, 1–4.
12. Porges, S. W. (2011). *The Polyvagal Theory*. W.W. Norton & Company.

13. Sapolsky, R. M. (2004). *Why Zebras Don’t Get Ulcers*. Holt Paperbacks
14. Selye, H. (1956). *The Stress of Life*. McGraw-Hill.
15. Serpell, J. (2003). Anthropomorphism and anthropomorphic selection beyond the “cute response.”

    Society & Animals, 11(1), 83–100.
16. Sundman, A.-S., Van Poucke, E., Holm, A.-C. S., Faresjö, Å., Theodorsson, E., Jensen, P., & Roth, L.

    S. V. (2019). Long-term stress levels are synchronized in dogs and their owners. *Scientific Reports*, 9(1), 7391.
17. Topál, J., Miklósi, Á., Csányi, V., & Dóka, A. (1998). Attachment behavior in dogs using the Strange Situation Test. *Journal of Comparative Psychology*, 112(3), 219–229.
18. McEwen, B. S. (1998). Protective and damaging effects of stress mediators. New England Journal of Medicine, 338(3), 171–179.
19. Overall, K. L. (2020). Behavioral consequences of social restriction in companion dogs during COVID-19 conditions. Journal of Veterinary Behavior, 40, 1–4.
20. Porges, S. W. (2011). The Polyvagal Theory. W.W. Norton & Company.
21. Sapolsky, R. M. (2004). Why Zebras Don’t Get Ulcers. Holt Paperbacks.
22. Sundman, A.-S., Van Poucke, E., Holm, A.-C. S., Faresjö, Å., Theodorsson, E., Jensen, P., & Roth, L.

    S. V. (2019). Long-term stress levels are synchronized in dogs and their owners. Scientific Reports, 9(1), 7391.
23. McEwen, B. S. (1998). Protective and damaging effects of stress mediators. New England Journal of Medicine, 338(3), 171–179.
24. Porges, S. W. (2011). The Polyvagal Theory. W.W. Norton & Company.
25. Sapolsky, R. M. (2004). Why Zebras Don’t Get Ulcers. Holt Paperbacks.