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ABSTRACT

The discipline of dentistry includes most animals that have a masticatory system and have experienced contact and interaction with humans. This article provides an illuminating account of the historical development of animal dentistry and outlines the future direction of the specialty. Animal dentistry has undergone a complex evolution, with pioneers in the field guiding the way for both dentists and veterinarians. It has transitioned from being a source of financial dependence through equine dentistry to include the dental care of household pets. Through the examination of several animal dentistry cases, we will uncover both the commonalities and distinctions. Animal dentistry is an essential specialty in veterinary medicine that is experiencing growth, both economically and in its integrative approach to treating the entire body and its systems.

EDUCATIONAL OBJECTIVES

At the conclusion of this course, the oral health-care provider will be able to:

1. Comprehend the intricate background of veterinary dentistry
2. Describe the importance of veterinary dentistry resulting from human interaction
3. Become acquainted with the trailblazers of veterinary dentistry
4. Have a basic understanding of how the need for exotic animal dentistry has been impacted by the exotic pet trade
5. Appreciate the collaboration between the fields of dentistry and veterinary medicine to enhance the well-being of animals
6. Explore ways to actively participate in veterinary dentistry

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In the tiger's mouth: A history of veterinary dentistry

A PEER-REVIEWED ARTICLE | by Tina Brandon Abbatangelo, DDS, MPH

History of veterinary dentistry

The history of teeth among all species mirrors the evolution of the world.[1] The narrative shares a story that encompasses science, research, animal welfare, prevention, and technology. The development of human dentistry is comparable to that of veterinary dentistry in that both are vibrant and progressive disciplines. Each field has a unique story to tell. Veterinary dentistry was not an easy or widely accepted practice. A considerable number of veterinarians opposed the changes and standards, which encompassed the adoption of evidence-based science, treatment modalities, and organizational structures within the veterinary dental college.[2] As a veterinary specialty, it has a unique two-part history. This article will focus on the progress made over time within this specialty of veterinary medicine, along with a display of common animal dentistry cases. The first slice of history begins with equine dentistry. The second part brings domestic animals into the story and places us where we are today. It is

not surprising that the history of this specialty began with horses, which have played a vital role in numerous aspects of human survival.

Early veterinary dentistry was primarily concerned with the dental care of equines, but as knowledge of oral pathology, aging characteristics, and other relevant factors in other animals accumulated, the scope of dental care provided by veterinarians expanded to include all animal patients. This expanded knowledge has benefited humans and animals alike. Through confirmation with animal dental experimentation, we have been able to scientifically examine issues such as the development of oral neoplasms, the cause of caries and periodontal disease, and numerous other topics associated with dentistry. Similar complications can be observed in the oral cavities of other animals and pets, as our understanding of the pathological processes affecting the human mouth has progressed.

The horse has exerted the most evident influence of any domestic animal throughout human history.[3] The earliest evidence of equine dentistry was discovered in 1150 BCE in the Mongolian Steppe. Equine veterinary care, specifically oral health care, played a crucial role in ensuring the continuation of a strong human-horse relationship because of the limitations imposed by horse biology and available riding apparatuses. The preservation of equine health through dental procedures strengthened the critical role of horses throughout economies and cultures across the globe.[3]

Horses have historically been necessary for transportation, sports, mechanical power, and military use. Strong jaws and teeth were essential to fit their mouths securely with bits to control and manipulate their direction and speed.[4] To manage occlusal abnormalities, their teeth were intentionally modified (floating) to help accommodate mechanical gags.[3] Horse teeth floating, a dental procedure that eliminates the sharp edges that develop on horses' teeth, is essential to proper bit comfort. Moreover, it creates a uniform grinding pattern for the horse's chewing, promoting better digestion. There are at least 40 teeth in the mouth of an average adult male horse: 20 teeth positioned in the maxillary and 20 in the mandible. Occasionally, the absence of canines in females results in up to four fewer teeth. "Wolf teeth" are present in both sexes. Based on position and structure, horse teeth are classified like human dentition with incisors, canines, premolars, and molars.[5]

The discipline of animal dentistry first appeared in Ancient Egypt; nevertheless, its progress has been obstructed due to the Library of Alexandria fire of 48 BCE, which destroyed over 700,000 ancient historical manuscripts.[6] The ancient Greeks contributed to veterinary dentistry with Simon of Athens' writings of *The Veterinary Art, Inspection of Horses* in 480 BCE. Aristotle's *History of Animals* was written in 333 BCE, where he wrote about horses' aging teeth and periodontal disease.[7-9] The Romans also contributed to veterinary dentistry through Chiron, a veterinarian, who wrote a series of animal books with material including equine oral pathology and fractured jaw management.[9] The fascination with horses continued into the Byzantine Empire. The interest continued throughout Europe as horse riding and ownership became more progressive among the elite, making veterinary medicine even more essential.[10]

The origins of small-animal dentistry were independent and gradual. Unfortunately, it began with barbaric procedures that were performed only due to superstitions.[4] One example is the excision of the lyssa (the fibromuscular tube that supports the rostral end of the tongue). The belief that rabies was transmitted by a small worm at the base of the tongue was widespread. Grattius Faliscus, a first-century BCE poet, was aware of the legend surrounding the origin of the sublingual lyssa of rabid dogs. It was believed that a rabid dog could be wholly cured by extracting the worm.[11] Furthermore, it was suggested that this worm, when injected, possessed miraculous curative abilities capable of averting the disease in the bitten individual; however, this was only the case after the lyssa had been carried three times around a fire.[12]

There is even evidence of the fabrication of dog dentures.[13] The progressive shift into smaller animal dentistry came when there was an increase in companion animals. Their oral health needs became a priority, and owners paid more attention to the animals' diets, especially when these animals were no longer hunting for their food. Refined diets brought on more periodontal and oral disease due to reduced masticatory function.

The first-ever veterinary dental school was established in 1762 in Lyon, France.[11] It marked an initial milestone for a shift in veterinary dental teachings. Following this breakthrough, the first veterinary dental written material was published in 1889 with many books following. These publications expanded the scope of veterinary dental techniques beyond equine dentistry to encompass small-animal dentistry. Veterinary dentistry originated as an independent discipline within veterinary surgery after the release of *Outlines of Veterinary Medicine and Carnivore Pathology* by Delabere Blaine in 1832.[14]

Although nitrous oxide (N_2O) was utilized in human anesthesia since

the 1840s, its prominence in veterinary anesthesia was limited. In 1799, Sir Humphry Davy introduced the notion of implementing nitrous oxide in veterinary medical procedures.[15] Despite a limited application period in dentistry, it ultimately proved ineffective in veterinary medicine due to its lack of potency. Dr. William Morton, an oral surgeon at Boston Hospital, was advised to undertake the anesthesia endeavor. This was followed by the utilization of ether in a tooth extraction in 1846. This became a remarkable advance in the field of veterinary surgery during the 19th century with the introduction of anesthesia. The advancements in human medicine have resulted in favorable developments in the fields of veterinary medicine and veterinary dentistry.[16] In current times, nitrous oxide can be used in conjunction with other medications including isoflurane, halothane, and sevoflurane to increase its effectiveness.[15]

Joseph Bodingbauer, Arthur Mellenby, Louis A. Merillat, Frederick Hobday, and Raymond Garbutt were among the initial pioneers. During the 1930s, Bodingbauer shed light on the field of small-animal dentistry in Vienna. Dogs, cats, and other small animals gained importance. Arthur Mellenby published a collection of comprehensive papers in 1929 that examined the impact of dietary modifications on the dental health of animals and the progression of dental diseases.[17] In the United States, these teachings did not arise until much later. *Animal Dentistry and Oral Diseases* was published by Merillat in 1905. Hobday published *Surgical Diseases of Dogs and Cats* in 1925. Furthermore, dental prevention and prophylaxis were first proposed by Garbutt in 1938.[17]

There was a significant gap in history until the 1970s. A small but dedicated group of veterinarians created the Veterinary Dental Association (VDA) in 1976. Advances in animal dentistry treatment were initiated by the group. Greater emphasis was placed on the animal masticatory system following the establishment of the organization. The VDA understood the importance of proper oral hygiene and function for an animal's overall health. By 1987, the VDA recognized dentistry as a specialty in veterinary medicine. These pioneers began consulting zoos for help on veterinary dentistry issues. Their combined knowledge and efforts have contributed to its trajectory today. The specialty has advanced from a few colleagues conversing over coffee to the founding of a forward-thinking, widely known veterinary dental college. In 2017, the American Veterinary Dental College (AVDC) also introduced a certification program for zoo and wildlife veterinarians.

Veterinary dentistry as a specialty

Dentistry is an essential addition to any veterinary practice. Key elements are prevention and general health. All systemic illnesses are connected to one another, and this includes how they affect the mouth. Both domestic animals and exotic species benefit from advancements in dentistry. One of the AVDC's long-term teaching objectives is to provide comprehensive dental treatment for domestic, exotic, companion, equestrian, and livestock animals.

For veterinarians to become board-certified in the field of dentistry, additional training is required. This parallels human dentistry when a general dentist decides to specialize in one of the 12 ADA-recognized specialties. The considerable distinction in training is the layered knowledge of most disciplines of dentistry, including operative, oral maxillofacial surgery, endodontics, oral pathology, radiology, orthodontics, periodontics, and dental anesthesia.

Their training must also encompass a full understanding of numerous animal species, both domestic and exotic, and common oral pathologies. Full-mouth radiography, full-mouth probing, and a thorough clinical examination are taken to make a proper diagnosis. Like human dentistry, the main goals of veterinary oral health care are to promote overall health through diagnosis, prognosis, prevention, treatment, and management.

There exist notable distinctions and parallels with respect to the oral cavity among various animal species and humans. A painful analogy is the detrimental effect that acute or chronic dental pain can have on an individual's quality of life. Sadly, the only means by which animals can communicate their pain is by refusing to eat, becoming unpredictable in behavior, or losing interest in social relationships.

From the advances in veterinary dentistry over the last 20 years, the American Veterinary Medical Association currently recognizes veterinary dentistry as a specialty. The AVDC is the governing body, and it establishes the rules and conditions for certification. The specialty certification in dentistry requires completing three to five years of training.

Common dog and cat oral pathology

Domestic dogs and cats are the most common animals seen in a veterinary clinic. Periodontal disease, dental caries, and oral cancers are some of the major pathologies found in their oral cavities, especially those ages 7 years and older.[18]

FORL (feline odontoclastic resorptive lesion) is a common condition among domestic cats (figure 1). The precise etiology of FORL remains unknown, yet the mechanism of

progression is well understood. Suggested causes include inflammation of the soft tissue around the tooth, damage to the enamel or cementum, predisposition resulting from the anatomical structure of cat teeth, or excessive vitamin D intake.[19] Pathogenesis occurs when odontoclasts cause cementum and dentin resorption. Bonelike tissue replaces the resorbed tissue. FORL can occur on any root surface of the tooth.[19] The most seriously affected tooth is the mandibular third molar, and the progression of the disease is typically symmetrical. Alterations in behavior, hypersalivation, and anorexia are clinical signs, but certain cats exhibit no clinical symptoms. When resorption penetrates the pulp, the disease is painful. A comprehensive clinical examination encompasses a radiological assessment of every tooth while the animal is completely sedated. The intent of every treatment is to alleviate the cat's pain and discomfort. At present, the available options for treatment consist of coronal amputation and tooth extraction, with tooth extraction being the most recommended.[19]

FIGURE 1: Odontogenic resorptive lesions in domestic cat; radiograph and clinical photo

FIGURE 2: Clinical photo of toy breed with severe periodontal disease

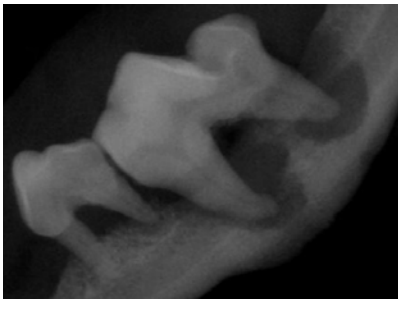

FIGURE 3: Radiograph of mandibular teeth of toy breed with periodontal disease

Toy breeds are notorious for periodontal disease. The following case shows clinical and radiographic evidence of bone loss (figures 2–4). Extraction followed by a soft diet is the recommended treatment.

Figures 5–10 show a black Labrador with a carious lesion that penetrated the pulp on the fourth mandibular premolar. The tooth was treated with a root canal and full metal crown. Extraction was another option, but the owner wanted the most ideal treatment for his canine companion. This case was performed by Dr. Brian Hewitt, a board-certified veterinary dentist, and Dr. Tina Brandon Abbatangelo.

FIGURE 4: Radiograph of maxillary teeth of toy breed with periodontal disease

FIGURE 5: Clinical photo of carious lesion on fourth mandibular premolar

Exotic animal dentistry and the PEIVDF

Historically, humans have been fascinated by exotic animals. Having the rarest and most unique animals provides shock value for exotic pet owners. Lamentably, the exotic pet trade involves the unfortunate act of taking animals from their natural habitats for private ownership, entertainment, bragging rights, or killing for medicinal purposes. In addition, there are long-term negative effects.[20] The exotic pet trade, a multibillion-dollar industry, has been a consistent global problem, not only to an animal's well-being, but also for loss of species. According to the International Union for Conservation of Nature's (IUCN) Red List study, 28,338 different species, or 27% of the more than 105,000 species the organization has examined, are in danger of going extinct.[21] The black-market industry not only endangers the lives of animals, but it also endangers communities and ecosystems.

For some people, a dog or cat no longer suffices for a household pet; they want more. In 2008, the Captive Wild Animal Protection Coalition estimated that over 17 million birds, 3,000 great apes, over 15,000 large exotic cats, and more than eight million reptiles had joined the group of household pets.[22] Over 200 million exotic animals were legally imported to the United States to meet the exotic pet trade demand. There are now more tigers in American backyards than in the wild.[23] There was also high activity in the black market simultaneously, with over $10 billion per year in profits.[24] This includes not only live animals, but also meat and animal parts.[25]

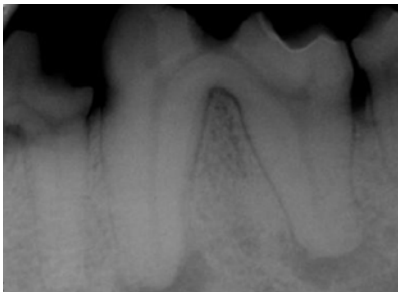

FIGURE 6: Radiograph of mandibular fourth premolar with periapical lesions on mesial and distal apices

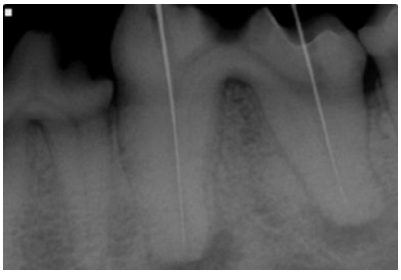

FIGURE 7: Radiograph of mandibular fourth premolar with working length files in mesial and distal roots

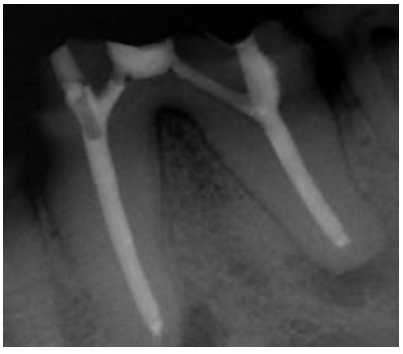

FIGURE 8: Radiograph of final fill after RCT

FIGURE 9: Final cementation radiograph of crown on fourth mandibular premolar

FIGURE 10: Clinical photo of all-metal crown on fourth mandibular premolar

FIGURE 11: Photo of a tiger's fractured mandibular canine no. 304

FIGURE 12: Photo of a tiger's fractured mandibular canine no. 304

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) minimally regulates the import/export business of these at-risk animals.[26] Therefore, this dirty business involves tremendous suffering at every stage of the process. The risks outweigh the benefits, but many do not realize the impact of their actions.[27] Whether it is led by greedy intentions or love of animals, the damage is immense and unpredictable. The damage includes increased zoonotic diseases, public health and safety concerns, compromised animal well-being, and disruption to natural ecosystems.

Many veterinarians, being called upon to provide medical and dental care, know this immense problem is worsening. They also understand that proper training for these animals is essential for their well-being.

The Peter Emily International Veterinary Dental Foundation (PEIVDF) started in 2006 with only a few passionate people. Dr. Peter Emily, a general dentist from Lakewood, Colorado, led the group with his immense knowledge of exotic animals' oral anatomy, disease patterns, and treatment.[28] He understood the need for work in animal sanctuaries and zoos throughout the world. His travels took him globally, helping exotic animals in need. From root canals to extractions, Dr. Emily and his crew have come to the rescue, providing dental care at animal sanctuaries. Many of these animals, especially large cats, were in abused environments and had fractured teeth and were unable to engage in the masticatory process. Those once large, sharp, and intimidating canines had been broken due to cage-biting or were intentionally filed down to the pulp to avoid hurting humans. The defanging process is an illegal act in many states; however, it still takes place. The main objectives of the PEIVDF are to train veterinarians and dentists to provide dental care on these captive animals to enable them to eat and survive. Now dependent on humans for survival, the animals must be taken care of from head to paw.

Fractured canines are a common problem among large captive exotic cats. Figures 11 and 12 show a tiger's canine fractured from cage-biting. These animals are sometimes placed in unnatural and stressful environments, causing them to find comfort in bad habits. The exposed pulp is very painful to this feline.

Figures 13–18 show a chimp undergoing endodontic therapy and a buildup on a canine tooth. After

spending most of their lives in research laboratories in cages, several of these chimps have been relocated to sanctuaries. They have been phased out and listed as endangered.[29] Many chimps in captivity live out their lives in wildlife sanctuaries around the United States. PEIVDF has traveled to many of these sanctuaries to assist those who have survived their research lives. Periodontal disease and tooth caries are common in chimps.

Veterinary dentistry today

Veterinary dentistry has developed into an impressive specialty today. From its beginning with equines, dentistry has advanced significantly with other animals. The Veterinary Dental Forum, an annual conference conducted in various cities, provides a place for veterinarians, dentists, veterinary technicians, veterinary dental students, veterinary students, and veterinary staff to learn, share, and advance veterinary dentistry. The AVDC, the Academy of Veterinary Dentistry, and the Foundation for Veterinary Dentistry work together to host the forum. In addition to talks by recognized experts in the field of animal dentistry, the conference includes practical hands-on training. As we advance with veterinary dentistry, we are in a unique position, thanks to our carefully woven history. Veterinarians and dentists continue to share knowledge for the benefit of both fields with the

FIGURE 13: Chimpanzee with working file in canal of a maxillary canine

FIGURE 15: Pipe cleaner inserted to dry canal of maxillary canine prior to obturation

FIGURE 17: GuttaFlow being inserted into canal of chimpanzee's maxillary canine

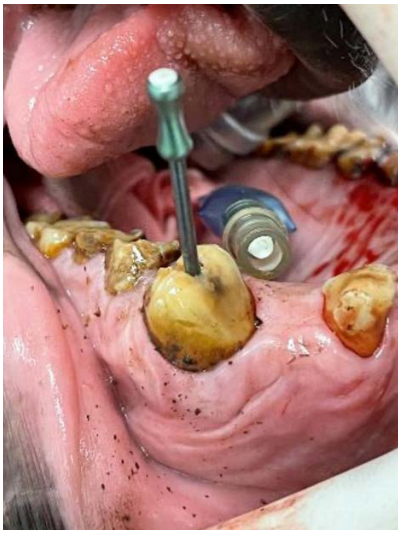

FIGURE 14: Chimpanzee with endodontic file in maxillary canine

FIGURE 16: Chimpanzee with gutta percha in canal of maxillary canine

FIGURE 18: Final restoration after RCT on chimpanzee's maxillary canine

intent to care for the animals, and the collaboration continues to advance both fields.

In most veterinary colleges, animal dentistry education is minimal. Following graduation, additional training is acquired through participation in veterinary dental forums or private institutions. Pet owners should seek out veterinarians who are board-certified in animal dentistry or have completed additional dental courses when searching for dental care for their animals. It is also important that veterinarians take full-mouth radiographs prior to any dental procedures, especially extractions. A growing trend has emerged regarding the dental care of domesticated animals. In 2022, the veterinary dentistry instruments and equipment market was valued at $358.2 million, per Transparency Market Research. The market is anticipated to increase at a compound annual growth rate (CAGR) of 6.4% between 2023 and 2031, resulting in a value of $615.3 million.[30]

Most states prohibit dentists from conducting dental procedures on animals. While they can guide a veterinarian, any form of animal-related labor is strictly forbidden by law. For example, the laws of Nevada are notoriously strict. Before undertaking dental procedures with your veterinarian, acquaint yourself with the relevant state laws. Veterinarians have made significant legislative efforts to protect their standing. Nevertheless, extending a helping hand and an olive branch when necessary is always suggested. However, the PEIVDF permits dentists and veterinary specialists to collaborate in providing dental care to captive exotic animals. Dr. Peter Emily's dream was to unite these two professions for the well-being of these animals. PEIVDF has assisted more than 550 animals through over 720 root canals and over 480 extractions and has participated in more than 100 animal missions. If animal dentistry fascinates you, please visit the PEIVDF website: https://peteremilyfoundation.org/.[28]

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28. Peter Emily International Veterinary Dental Foundation. https://peteremilyfoundation.org/
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30. Veterinary dentistry instruments & equipment market is expected to increase at a CAGR of 6.4% by 2031. Transparency Market Research. January 2024. https://www.transparencymarketresearch.com/veterinary-dentistry-instruments-equipment-market.html

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1. Animal dentistry's history began with:
   - A. A dog with squamous cell carcinoma
   - B. Equines
   - C. A raccoon bite
   - D. A cat with feline odontogenic resorptive lesions

2. Horses have been instrumental throughout history in:
   - A. Transportation
   - B. Sports
   - C. Mechanical power
   - D. All of the above

3. Floating teeth is a procedure used on equines to:
   - A. Manage occlusal abnormalities and help accommodate mechanical gags in the horse's mouth
   - B. Eliminate the sharp edges that develop on horses' teeth and facilitate proper bit comfort
   - C. Create a uniform grinding pattern for the horse's chewing, promoting better digestion
   - D. All of the above

4. Which statement is true?
   - A. Floating teeth is very uncommon.
   - B. Floating teeth creates a more uniform grinding pattern in horses.
   - C. Floating teeth is done to help manage occlusal abnormalities on baboons.
   - D. Floating teeth is done on rats and mice.

5. Early veterinary dentistry:
   - A. Involved the fabrication of dentures on whales
   - B. Began with chimpanzees and bonobos
   - C. Started with equines due to their critical economic role
   - D. Began with domestic dogs and cats

6. The earliest evidence of equine dentistry was discovered:
   - A. In Tibet on a Shetland pony
   - B. In the Mongolian Steppe in 1150 BCE
   - C. In Japan in the early 1900s
   - D. In Australia on a feral horse in 1788

7. Where did the discipline of animal dentistry first appear?
   - A. India
   - B. Africa
   - C. China
   - D. Egypt

8. What was the purpose of the superstitious procedure performed on a dog's lyssa?
   - A. To remove a worm that was believed to cause rabies
   - B. To prevent animal aggression
   - C. To enhance the dog's life expectancy
   - D. To prevent the animal from communicating

9. Where was the first veterinary school?
   - A. France
   - B. London
   - C. Japan
   - D. Ireland

10. Veterinary dentistry is recognized as one of 12 ADA specialties. To become certified, further training is required for three to five years as outlined by the American Veterinary Dental College.
   - A. Both statements are true.
   - B. Both statements are false.
   - C. The first statement is true; the second statement is false.
   - D. The first statement is false; the second statement is true.

11. Which of the following statements is false?
   - A. The most common animals seen in veterinary clinics are dogs and cats.
   - B. Periodontal disease, dental caries, and oral cancer are common pathologies seen in veterinary clinics.
   - C. The common age for dental disease is 7 years and older.
   - D. FORL is caused by the same etiological agents that cause human dental caries.

12. Which of the following statements about FORL is false?
   - A. FORL is caused by resorption of dentin and cementum at the root surface that is replaced with bonelike tissue.
   - B. The most commonly affected teeth are the central incisors.
   - C. Clinical signs include alterations in behavior, hypersalivation, and anorexia.
   - D. Treatment options for FORL include extraction and coronal amputation.

13. Which of the following is not a consequence of exotic pet trade?
   - A. Thousands of exotic species are lost by this trade annually.
   - B. Ecosystems and communities are endangered.
   - C. There is an increase in zoonotic diseases and decreased life expectancy of animals.
   - D. All of the above are consequences of the exotic pet trade.

14. What is the objective of the PEIVDF?
   - A. To bring awareness to the unsafe practices of the exotic pet trade
   - B. To create the educational standards for the dental veterinary specialty
   - C. To provide rescue dental care for sanctuary animals
   - D. None of the above

15. What tooth is commonly fractured in large captive exotic cats?
   - A. Incisors
   - B. Third molars
   - C. Canines
   - D. All teeth are equally prone to fracture.

16. Veterinary colleges teach minimal veterinary dental education. Those board-certified in animal dentistry or veterinarians with additional education are capable of providing strong veterinary dental care.
   - A. Both statements are true.
   - B. Both statements are false.
   - C. The first statement is true; the second statement is false.
   - D. The first statement is false; the second statement is true.

17. Which statement is false?
   - A. Nitrous oxide is predominantly used in animal anesthesia.
   - B. Nitrous oxide has been utilized for human anesthesia since the 1840s.
   - C. Ether was used in dentistry for tooth extraction in 1846.
   - D. Sir Humphry Davy was known for his work with nitrous oxide.

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18. Which statement is false?

A. There is evidence of the fabrication of dentures for dogs.

B. Refined diets brought on more periodontal and oral disease due to reduced masticatory function.

C. Pets' oral needs have become more of a priority for owners.

D. Dentistry is not practiced in veterinary medicine.

19. Which statement is true?

A. Dentistry is not an essential addition to any veterinary practice.

B. Prevention and general health are not key elements to a healthy veterinary practice.

C. Comprehensive care, like in humans, is also essential to animal health.

D. Radiographs do not need to be taken for an oral examination on your pet.

20. The VDA was created in the 1970s. In 1987, the VDA recognized dentistry as a specialty in veterinary medicine.

A. Both statements are true.

B. Both statements are false.

C. The first statement is true; the second statement is false.

D. The first statement is false; the second statement is true.

21. Which statement is false?

A. Bodingbauer's focus was small-animal dentistry in the 1930s.

B. Merillat wrote *Animal Dentistry and Oral Disease* in 1905.

C. Hobday wrote about prevention of oral disease in 1905.

D. Dental prevention and prophylaxis were first proposed by Garbutt in 1938.

22. What year did the AVDC introduce a certification program for zoo and wildlife veterinarians?

A. 1901

B. 2023

C. 2017

D. 2016

23. Which book did Hobday publish in 1925?

A. *The Tiger with a Broken Canine*

B. *Surgical Diseases of Dogs and Cats*

C. *The Vet and Dental Disease*

D. None of the above

24. Which statement is true?

A. Garbutt first proposed dental prevention and prophylaxis in the 1930s.

B. Garbutt was a general dentist.

C. Garbutt was never recognized for any animal dentistry research or work.

D. Garbutt did not believe that oral health contributes to overall health.

25. Which statement is true?

A. Animal dentistry is a dying field.

B. The animal dentistry market is anticipated to decrease in revenue.

C. There is an annual veterinary dental forum that is held in different cities.

D. Veterinarians are not taught about dentistry in school.

26. The PEIVDF is a volunteer group composed of:

A. Only dentists

B. Only endodontists

C. Dentists and veterinarians

D. Veterinarians and cardiologists

27. Which statement is false?

A. Peter Emily was a general dentist.

B. Peter Emily's dream was to bring dentists and veterinarians together to provide dental care to captive and exotic animals.

C. Peter Emily helped start the PEIVDF in 2006.

D. Peter Emily was a veterinarian.

28. Which statement is false about the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)?

A. CITES regulates the export-import business of at-risk animals.

B. CITES imposes limited regulation because the exotic pet trade constitutes a billion-dollar black market sector.

C. There is tight control on the exotic pet trade and minimal animals enter the US illegally due to CITES.

D. CITES does not prevent tremendous suffering at every stage of the process of exotic pet trade.

29. Which statement is true about the exotic pet trade?

A. Animals' lives are not endangered during exportation.

B. In the US, there are more tigers in private residences than in their natural habitat worldwide.

C. The exotic pet trade is a small industry.

D. The exotic pet trade keeps animals' well-being at the forefront of their operation.

30. The PEIVDF is a nonprofit organization that provides dental care to captive and exotic animals. The PEIVDF has grown in volunteers since 2006.

A. Both statements are true.

B. Both statements are false.

C. The first statement is true; the second statement is false.

D. The first statement is false; the second statement is true.

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In the tiger's mouth: A history of veterinary dentistry

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EDUCATIONAL OBJECTIVES

1. Comprehend the intricate background of veterinary dentistry
2. Describe the importance of veterinary dentistry resulting from human interaction
3. Become acquainted with the trailblazers of veterinary dentistry
4. Have a basic understanding of how the need for exotic animal dentistry has been impacted by the exotic pet trade
5. Appreciate the collaboration between the fields of dentistry and veterinary medicine to enhance the well-being of animals
6. Explore ways to actively participate in veterinary dentistry

COURSE EVALUATION

1. Were the individual course objectives met?

   Objective #1: Yes No Objective #3: Yes No Objective #5: Yes No

   Objective #2: Yes No Objective #4: Yes No Objective #6: Yes No

Please evaluate this course by responding to the following statements, using a scale of Excellent = 5 to Poor = 0.

2. To what extent were the course objectives accomplished overall? 5 4 3 2 1 0
3. Please rate your personal mastery of the course objectives. 5 4 3 2 1 0
4. How would you rate the objectives and educational methods? 5 4 3 2 1 0
5. How do you rate the author's grasp of the topic? 5 4 3 2 1 0
6. Please rate the author's effectiveness. 5 4 3 2 1 0
7. Was the overall administration of the course effective? 5 4 3 2 1 0
8. Please rate the usefulness and clinical applicability of this course. 5 4 3 2 1 0
9. Please rate the usefulness of the references. 5 4 3 2 1 0
10. Do you feel that the references were adequate? Yes No
11. Would you take a similar course on a different topic? Yes No
12. If any of the continuing education questions were unclear or ambiguous, please list them.

    _____

13. Was there any subject matter you found confusing? Please describe.

    _____

14. How long did it take you to complete this course?

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6.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	21.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
7.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	22.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	23.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
9.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	24.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
10.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	25.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
11.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	26.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
12.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	27.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
13.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	28.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
14.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	29.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
15.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	30.	Ⓐ	Ⓑ	Ⓒ	Ⓓ

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