A Guide to Dental SEDATION

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QUINTESSENCE PUBLISHING

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Dedications

To my wife Shelley, whose love inspires and strengthens me.

Leonard B. Goldstein

To my late son Alfred. May his memory continue to inspire me.

Alfred Mauro

To my husband Bernie, whose support, encouragement, and pride for everything I do is unbounding. I am glad we are on this journey together and I love you.

To my parents, for always believing I can and forever being in my corner. Words cannot express how much I love and appreciate you both and all you do.

Lindsay M. Gilbert

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Preface

Dental sedation has improved substantially during the past decades, especially since the publication of the foundational textbooks on the topic. Over the years, many students and practicing dentists have requested a "desk reference" to describe the use of sedation in all the clinical specialties in dentistry, and that is what this book aims to do. We appreciate the opportunity to share this information and believe we have assembled an outstanding group of content experts and chapter authors who contributed to the topic of dental sedation.

Our intent is for this book to be used as a reference guide for both dental students and practicing dentists. We believe that it can help to bridge the gap between classroom instruction and the actual application of various methods of sedation in the different specialties.

We have had the honor and pleasure to work with many outstanding and renowned authors in the field of dental sedation and dental clinical specialties, and none of them has ever refused to exchange opinions, accept advice, or provide suggestions. To all of them, we give our most grateful thanks for agreeing to be part of this project, one of the most exciting in our professional careers.

Together we hope that our efforts will be appreciated by the heterogeneous dental community of dental students, dental practitioners, and all dental specialists.

Acknowledgments

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SECTION III
OTHER CONSIDERATIONS

CHAPTER 13

Animal-Assisted Therapy in the Dental Setting

Mai-Ly Duong, DMD, MPH

This chapter proposes a strategy for managing dental anxiety that is different than the use of anesthesiology: animal-assisted therapy (AAT). This therapy can be used in conjunction with sedation or in place of sedation to reduce and manage anxiety during the provision of dental treatment. AAT is grounded in the scientific evidence that the human-animal bond is one of mutual benefits and is influenced by behaviors that directly lead to positive health and well-being for both.[1] Because of this, AAT involves goal-centered interventions in which the animal plays an integral part of the treatment and health care process.

History of AAT

Although AAT is modern-day terminology and a growing field of study in psychology research, the use of animals for health benefits can date back to the beginning of mankind and the relationship between cavemen and wolves.[2] However, it was not until 1792 that the first case of animal therapy was documented in England, when William Tuke found that farm animals such as rabbits and chickens lessened the need for drugs and restraints among patients.[3] By the 19th century, animals were used as companions in European mental health institutions to increase comfort in an already seemingly prison-like environment.[4,5] In 1919, the use of companion animals was first documented in the United States. Most notably, canines were used in the psychiatric

wings of hospitals.[5] In the 1940s, animals were used to help US veterans recuperate and to reduce any posttraumatic stress disorder (PTSD) symptoms. By the end of the 20th century, the use of animals in the health care setting had become very popular, and the following terms were coined:

- Animal-assisted therapy
- Animal-assisted interventions
- Pet therapy

For the purposes of this chapter, the term *AAT* will encompass all past and current terms related to leveraging the human-animal bond for therapeutic and health benefits.

Goals of AAT

Approximately 20% of Americans report a moderate to high level of anxiety toward obtaining dental treatment. The most common reasons for avoiding dental treatment include fear of dental experience and previous negative dental experience.[6,7] This anxiety and fear is what causes an estimated 40 million Americans to avoid the dentist.[8] Avoiding or delaying needed dental treatment can lead to extremely detrimental oral health consequences and inevitably reduces oral health–related quality of life.[6] This reduction in quality of life and its related stresses can further negatively influence one's mental and physical health as well.

With stress and anxiety come the activation of an individual's autonomic nervous system. This system prepares the body for the sympathetic fight-or-flight response.[9] Self-induced regulation is necessary, as it serves as a coping mechanism for the body in certain situations.[10] However, continued sympathetic activation can contribute to coronary heart disease, reproductive dysfunction, and immunosuppressive disorders.[10] Chronic stress and autonomic activation can lead to decreased salivary flow rate, xerostomia, and increased levels of plaque formation, all of which contribute to risk for oral disease[11] (Fig 13-1).

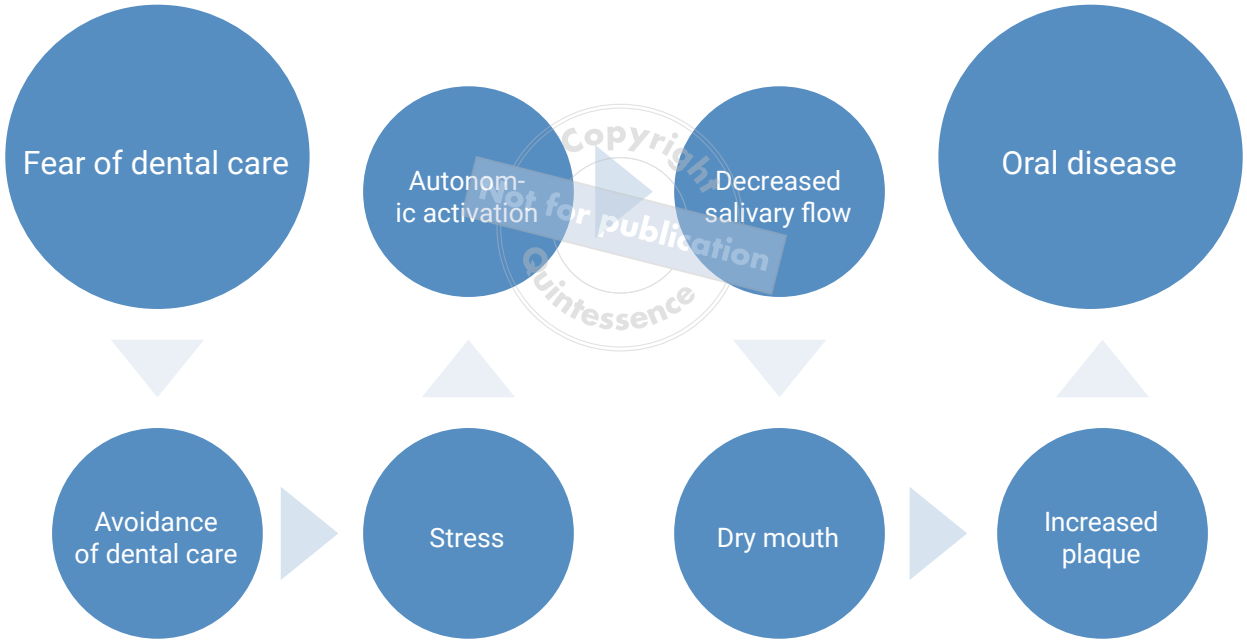

Fig 13-1 Many factors in conjunction can lead to oral disease.[11]

To help a patient overcome stress and dental anxiety, it is important for dental health practitioners to address both the patient's emotional and physiologic needs. There is a growing need to understand how to best address this issue. Several studies have analyzed stress and dental anxiety reduction methodologies. Examples include the use of audio and visual techniques and cognitive behavioral therapy.[10,12–14] One method that has yet to be extensively researched is the use of AAT.

AAT programs are designed to improve an individual's physical, social, and emotional health and/or cognitive functioning.[15] In recent years, there has been a growing interest in AAT due to its various health and therapeutic benefits. The use of AAT has shown cardiovascular, psychologic, and cognitive benefits. Specifically, the use of AAT helps to decrease anxiety, stress, and depression levels; decrease heart rate and blood pressure; improve self-esteem and mood; and lower immunoglobulin A (IgA) levels.[16] These changes have been seen with both long- and short-term exposure to AAT. Consequently, nursing homes, hospitals, retirement communities, and many other institutions are implementing AAT.[17] While the benefits of AAT are well documented in medical care facilities, studies of AAT are virtually nonexistent in dental settings.

AAT in Dentistry

In 2000, the American Academy of Pediatric Dentistry recommended the use of distraction techniques to alleviate patient fear and anxiety related to dental treatment.[18] Along with the other benefits of AAT, Katcher and Friedmann reported that AAT can work as such a distraction. Petting an animal creates "a passive meditative focus on a nonthreatening stimulus [that] can relax a person by lowering the body's state of arousal"[19] (Fig 13-2). In addition to tactile stimulation, AAT can provide deep pressure therapy (DPT) to anxious patients. DPT involves a dog using its weight and sometimes warmth to mitigate a psychiatric symptom, often either as a calming strategy or to minimize disengagement from the world. Like a weighted blanket for people with autism, DPT can relax and reengage a person enduring an otherwise disabling symptom.[20]

Fig 13-2 *(a and b)* Petting a cat or dog can relax a patient and distract them from procedures that may otherwise cause anxiety.

One previous study attempted to show the benefits of AAT in a dental setting; however, the methods resulted in conflicting and inconclusive evidence of benefit.[21] Many anecdotal experiences and case studies have shared the benefits of canine-assisted therapy in the dental setting. More properly designed studies need to be implemented to explore the effectiveness of AAT in a dental setting. Because AAT has been demonstrated to be successful in patient populations with mental illness, trauma,

disabilities, and children and older people, it can be argued that these patients are the best candidates to experience the benefits of AAT while undergoing dental treatment.

Benefits of AAT

Cardiovascular benefits

The American Heart Association and the American Stroke Association report an estimated 83.6 million Americans who have been diagnosed with some type of cardiovascular disease (CVD). Further, CVD has been shown to increase premature deaths and nursing home admissions. Friedman and Thomas found that of the individuals who have experienced a myocardial infarction, those who owned pets had a 1-year survival rate that was statistically significantly higher than those who did not own pets.[22] The American Heart Association has assessed the existing evidence and concluded that pet ownership has a positive influence on the presence and reduction of CVD and is currently examining the causal relationship that may be present[23] (Fig 13-3). Other reputable institutions, such as the Mayo Clinic, have incorporated AAT and are also currently examining the effects of AAT on CVD.

Fig 13-3 Having a pet has been shown to reduce heart disease.[23]

Psychologic benefits

The positive benefits of AAT were first documented in the psychology field. It is also important to note that more than half of psychiatrists and psychologists indicate that they have prescribed companion animals (or pets) for their patients.[24] AAT has been shown to improve social and communication skills, as well as reducing anxiety, improving mood, and facilitating empathic skills[25] (Fig 13-4). Some evidence has demonstrated that the simple act of petting an animal reduces feelings of loneliness, depression, and insecurity.[26] This provides strong support for the use of AAT in the dental arena, where so many individuals face anxiety.

Fig 13-4 Psychologic benefits of pets include reduced anxiety, better mood, greater empathy, and reduced loneliness, depression, and insecurity.

Cognitive benefits

AAT can serve as a catalyst in communication, especially during psychotherapy sessions, because the presence of an animal makes the experience less threatening and more inviting. Holding or petting an animal can serve as physical comfort and provide a sense of security and safety.[4] For this reason, the use of AAT in dental treatment is further supported. Additionally, when an individual is comforted and secure, physiologic signs such as blood pressure and respiratory rate are also decreased or normalized.[22]

Types of AAT

Animals involved with AAT include, but are not limited to, dogs, cats, horses, dolphins, birds, rabbits, and fish. The most common animals used for AAT are dogs. Often, dogs, cats, or other small animals are used in health care facilities in which the patient is receiving treatment. For example, a canine and its handler will visit a patient who is chronically ill in the hospital or long-term care facility.

Canine-assisted therapy is the most common type of AAT provided in the health care setting and can be found in short-term and long-term as well as group and individual settings. Feline-assisted therapy is more commonly found in long-term facilities where the cats are treated like pets due to their independent nature. They provide a sense of continuity and a homey feeling to the residents of long-term facilities.

Other types of therapy such as equine-assisted therapy and dolphin-assisted therapy require the human or patient to travel to the animals' establishments. Having patients participate in grooming, feeding, and riding horses has shown significant improvements in health and healing. Further, having patients interact, feed, and swim with dolphins has also shown increased response to physical therapy and psychologic treatment.

Challenges of Utilizing AAT

Sanitation

Infection control is a primary concern in all health care facilities. Therefore, when incorporating AAT as a strategy to improve patient well-being, it is important to ensure that the animal and handler follow all the guidelines set forth by the Centers for Disease Control and Prevention (CDC) to properly and safely reduce the risk for infection during AAT activities. These guidelines include, but are not limited to, the following[27]:

- Establish and enforce proper handwashing protocols.

- Identify and treat any illness or wound that the AAT animal experiences in a timely manner.
- Ensure that the AAT animal receives routine and regular veterinary visits, including remaining up to date with all recommended vaccinations.
- Regularly bathe and groom the AAT animal within 24 hours of interacting with patients.
- Provide adequate time for the AAT animal to exercise and relieve themselves prior to interacting with patients.
- Provide a healthy diet for the AAT animal.
- Maintain an up-to-date record that shows the completion of an animal-assisted certification program.

Animal welfare

Just as humans are prone to burnout, animals can also experience burnout or fatigue if overworked. Therefore, standards and in-depth guidelines have been created by Pet Partners (formerly known as the Delta Society) to protect animals involved with AAT.[28] These should be thoroughly reviewed and implemented into any AAT program.

To reiterate the CDC guidelines, it is vital that the animal be well cared for from a general health standpoint. More so, the animals must also have time to enjoy being a pet. They must be trained to understand when it is time to work with patients and when it is time for them to play. When they are ill, proper action should be taken to ensure their physical and mental health is restored (Fig 13-5).

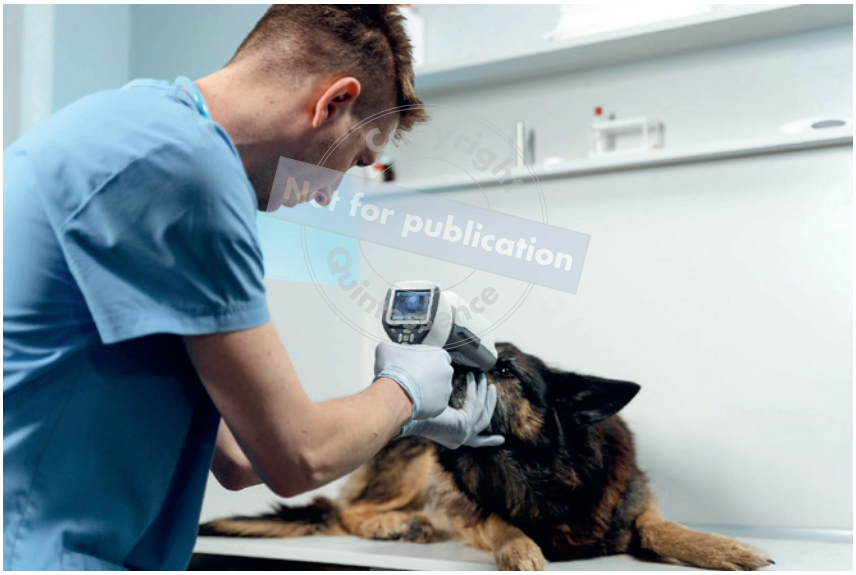

Fig 13-5 Pets and service animals should be regularly examined to ensure they are healthy.

Selection Process

Animals involved with AAT must be properly trained to prevent any bad outcomes due to miscommunication. They should have mastered basic obedience skills and behave in a predictable manner. They must also enjoy being around people and enjoy being touched or held. Because dogs have been domesticated and can learn how to appropriately respond to voice commands, they are the most common type of AAT animal.

In addition, the patient receiving the AAT should be considered. Their preferences may indicate which type of animal will yield successful outcomes. If a patient has allergies to certain types of animals, those animals should be identified and avoided. Any animal with which the patient reports a negative history should also be avoided.

Conclusion

Since AAT has been extremely successful in the medical arena, it is not surprising that it is slowly being incorporated into the field of dentistry. As more and more institutions incorporate the use of AAT to reduce anxiety, it can be argued that the use of AAT can be used in the following ways:

- To desensitize patients to a new dental office
- To alleviate anxiety during consultations in the dental office
- To reduce anxiety for invasive dental treatment
- To help reduce anxiety during the induction of deep or general sedation
- To help transition a patient from a deeper to a more conscious sedative state of mind

There is a rich body of evidence that shows the powerful effect that the human-animal bond can have in health and well-being. Therefore, AAT programs have the potential to be a significant part of patient-centered treatment. It is important that health care providers recognize, explore, and develop this strategy because it can have life-changing effects on their patients.

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