

# Animal-assisted therapy in the dental practice



## Introduction

Fear of the dentist is a problem that affects many patients and often stands in the way of dental care in the context of preventive, as well as curative treatment. The fear can be acquired through direct conditioning or through the narrated experience of other people in the context of indirect conditioning [3, 14]. To be able to carry out treatment despite dental anxiety, pharmacological techniques are often used to calm or immobilize the patient by means of nitrous oxide, sedation or intubation anesthesia. All these techniques have side effects. An alternative method is the use of “animal-assisted” therapy, which is known as AAT (animal-assisted therapy) in Anglo-American countries [3, 14, 16].

Man’s interest in animals stems from the fact that primitive human survival depended in part on animals in the environment. These served as indicators of a safe environment, but also of threats. This is the basis of Edward O. Wilson’s biophilia hypothesis (1984). When animals are observed in a peaceful state, it can signal safety, security, and a sense of well-being [6, 10, 16]. Dogs, in particular, are suitable therapy animals because they have developed human-like social skills through domestication that enable them to be sensitive to human posture, attentional states, and emotions [2, 8, 12].

Dogs are increasingly being used as part of animal-assisted therapy in German dental practices. In the following, an overview of the currently

available literature on this therapy approach will be given and possible problems will be mentioned.

## Statement

A review of the literature shows that most articles on animal-assisted therapy in the context of dentistry have been published in American journals. These are mainly clinical studies, meta-analyses and case reports. The number of studies addressing the benefits of animal-assisted intervention in dentistry is currently small. Increasingly, there is literature on the use of therapy dogs in areas outside dentistry, for example, rehabilitation, geriatrics, and psychiatry.

## Methodology for determining the benefits of animal-assisted intervention

Numerical subjective rating scales such as the Corah Dental Anxiety Scale (CDAS) or similar are often used to determine the usefulness of a therapy dog for dental treatment [3, 5–7, 16, 18]. Other criteria include measurement of the patient’s pulse and blood pressure [3, 5, 6, 18] as well as oxytocin (happiness or bonding hormone) and cortisol (stress hormone) levels, which reflect the (reduced) fear response [2, 20].

## Results of dental studies

According to a 2019 clinical study by Cruz-Fierro, Vanegas-Farfano et al., a therapy dog turns out to be useful in a dental (preventive) treatment of patients with dental anxiety. Thanks to the animal-assisted treatment, there

was a decrease in blood pressure and pulse rate, as well as a better evaluation of the treatment using CDAS. Thus, the treatment was somewhat less painful and anxiety-provoking [3].

In 2018, Gupta and Yadav published a study on the acceptance of the use of a therapy animal in the dental office among parents. 41 of 61 parents agreed with the use of a therapy animal [8]. In a study by Vincent, Easton et al. (2020), 90% of parents reported approving of treatment of their child in the presence of a therapy dog [19].

A study by Nammalwar and Rangeeth (2018) compared the anxiety levels of children with dental anxiety in a private pediatric dental facility in Chennai. A dog-assisted intervention was conducted in the waiting area as well as in the treatment area. The results showed that a 15-minute exposure in the waiting area already reduced the anxiety level [16].

A study by Fox (2019) also exclusively involved patients with dental anxiety. They were divided into two groups. One group had a 10-minute intervention with a therapy dog during dental treatment, and the second group served as a control group. The result was that the use of a therapy dog led to a reduction in physical and psychological anxiety [5]. In a study with a similar design, Thakkar, Naik et al. (2020) used independent t-tests to show that the anxiety reduction from having a dog present during therapy was highly significant ( $p < 0.001$ ) [18].

Vincent, Heima et al. 2020 studied children between the ages of 8 and 12 with a known dental anxiety. They were subjected to treatment in the presence of a therapy dog. Saliva was measured for oxytocin and cortisol, which reflect the fear response. In most of the samples, there was an increase in oxytocin as a result of the therapy dog intervention. However, this was not statistically significant. Cortisol levels tended to decrease [20].

### General medical studies

In general medicine, a dog-assisted intervention is used in the hospital in psychiatry, geriatrics, pediatrics and psychosomatics [6, 12, 13]. Dog-assisted therapy has a statistically small to moderate (but not significant) effect on psychiatric disorders (e.g., schizophrenia) and cognitive disorders (e.g., Alzheimer's disease) and on various medical interventions in palliative care [12]. Animal-assisted intervention can result in significant pain relief. Objective reports of reduced pain and pain-related symptom relief (especially in physical rehabilitation and in patients with chronic pain) are supported by studies. These measured decreased catecholamine and increased endorphin levels in people who received visits from therapy dogs [13, 15].

Further results show that a 20-minute session with a therapy dog can be an effective intervention to improve well-being and mood, as well as reduce anxiety. This is shown in an exploratory study of students at Heriot-Watt University [7].

### Limitations for the use of a therapy dog

As described earlier, animal-assisted dental treatment can be useful for patients with anxiety as well as for children with lack of compliance.

Contraindications include immunosuppression (due to increased susceptibility to infection), allergy to animal hairs, and pregnancy. Animal-assisted intervention is also not indicated for persons with an aversion or phobia towards animals. An existing acute infection, colonization with MRE, open wounds and a lack of compliance with hand hygiene also

speak against the use of a therapy dog [4, 9, 11].

### Hygiene problems

In Germany, it is not forbidden from a hygiene point of view to use a therapy dog in the dentist's office; in principle, the domestic authority applies [1].

According to Gussgard, Weese et al. (2019), risks to human health and safety during therapy dog intervention are present but low. Compliance with hygiene rules is crucial. The sources of danger can be divided into 4 categories: 1. the dog as a source of both zoonotic and human pathogens, 2. a contact with allergens in case of an existing animal hair allergy, 3. an undesirable animal behavior, 4. a reduced space due to the dog and an increased risk of falling (over the dog) [9].

According to the recommendation of the DGKH, the consent of all parties involved must be obtained before introducing a therapy dog. In addition, liability for damage caused by the dog must be clarified.

Conditions should be established and confirmed by the practice owner. The rooms entered by the therapy dog and the furniture in them must be wipe-disinfectable and a basin for washing hands must be easily accessible from the therapy room [4]. Furthermore, a notification to the health and veterinary office is required. The therapy dog must be labeled as such and must not be fed raw meat [11]. The dog's state of health must be checked regularly, and it requires a certificate of suitability as a therapy dog [4,9]. This is not yet awarded in Germany according to uniform criteria [17].

The personnel must be instructed on how to handle the animal and on the hygiene regulations. The hygiene plan must be written down. Attention must be paid to adequate hand hygiene and the prevention of scratch marks on the patient's skin and furniture [4, 9].

### Conclusion

Animal-assisted therapy is increasingly used in medical practices. Before its introduction, some important hygienic precautions are to be taken.

Furthermore, indication or, if necessary, contraindications for the respective patient have to be checked. The advantages lie in the reduction of anxiety, which has been proven in many studies, and which leads to effects such as a reduction in blood pressure, pulse reduction, an increase in oxytocin and a reduction in cortisol. Regarding the subjective sensation of the patients, this is expressed in a better evaluation by means of a numerical evaluation scale. However, there is still no standardized measurement methodology, which limits the significance and comparability of studies.

Overall, the use of a therapy dog as part of an anti-anxiety therapy during dental treatment is a feasible and cost-efficient approach to alleviating dental anxiety and has the potential to improve the therapy of anxiety patients and patients with poor compliance if studies improve in the future [14].

### Conflict of interest

The authors declare that there is no conflict of interest as defined by the guidelines of the International Committee of Medical Journal Editors.

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