Olfactory stimulation as an element of environmental enrichment preventing mental disorders in animals

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Environmental enrichment is the stimulation of the brain, which involves the enhancement of an animal’s physical or social environment. It influences brain plasticity, stimulates neurogenesis, decreases stress, and protects against the effects of brain injury. Environmental enrichment reduces the incidence or severity of undesirable or abnormal behaviours, such disorders like: obsessive – compulsive disorder, stereotypy, depression or anxiety and phobias. Abnormal behaviours observed in animals include locomotor stereotypes (such as weaving, pacing, and route-tracing) and mouth-based behaviours such as feather pecking, barbering or cannibalism, bar biting and many more. We distinguish 5 types of enrichment: social enrichment, occupational enrichment, physical enrichment, nutritional enrichment and sensory (or stimul) enrichment. The last one can be: visual (e.g., television), auditory (music, vocalizations), or in other modalities (e.g., olfactory, tactile, taste).

The vast majority of animals are macroscopic. The main sense which they are used in exploration is sense of smell (chemical receptors). We can use this trend in the design of sensory environmental enrichment with olfactory stimuli. For certain animal species we can use a variety of naturally attractive odors. For example - a cat as a predator is interested in feathers. The olfactory stimulation can also use pheromones, such as DAP (dog appeasing pheromone) or feline facial pheromone, which have calming effect.

Feline facial pheromone

Feline facial pheromone is a pheromone used by cats to mark places, objects, and persons as familiar, by rubbing their face on surfaces. There are also synthetic feline facial pheromones used in the treatment of anxiety, as well as to calm down the animals. They prove correct in case of introducing a new cat to home and in veterinary offices.

Olfactory behavioural therapy

The therapy can be based on an emotional system associated with a natural desire to explore. All exercises performed by the animals is good to combine with the organ of smell. The smell is the most important sense for macroscopic animals, such as dogs and cats.

Exercises involving the sense of smell

1. You can involve interactive toys to feed the dog with, such as Snacky Ball (Figure 1); logical hand-made toys: cardboard boxes (Figure 2); food wrapped in newspaper (Figure 3); plastic bottles filled with flavored treats; plastic bag with food hanging high to make an animal to lean up. You hinder gaining food gradually. The animal is forced to search for food and the performance of the entire sequence of exploratory behaviour in order to obtain food. In this way, mentally we stimulate dog or cat, so that you prevent boredom. You can stop administering the food from the bowl and give a food with only this type of toys. When you are working with fearful dogs you should use these toys in situations that arouse anxiety, eg. if the dog feels uncomfortable outside, you can slowly move the toys outside (Figure 1).

2. Tracking is searching for treats and toys with a particular scent. This exercise is reserved primarily for dogs. You teach the dog the command "search", while you are hiding treats or favorite toy. Initially you let the dog see where the toy is hidden. When the dog already knows the command "search", hinder the exercise, do not let the dog see where you are hiding treats. The dog should only follow the scent.

3. Relaxation training combined with essential oils (natural lavender) or with pheromone DAP. There is used classical conditioning. You massage the dog by hands sprinkled with lavender oil (or sprayed with DAP). A dog bed or blanket can be also sprinkled while massaging. The massage should be performer with repeated regularly calm command “relax”. At some point, the dog will associate relaxation with command and smell. Command “relax” and the scent could be used later in stressful situations (eg, when the dog is suffering from separation anxiety, owner can sprinkle a dog’s bed by lavender scent before he leave an apartment. That should automatically provide dog’s relaxation). In addition, that command is also useful in dogs prone to aggression and during the dog fight to alleviate and break the conflict. Above all, it is indicated for hyperactive dogs to calm down. The dog will gradually able to stay still longer during the massage, and relax completely (Figure 4).

4. "Targeting" is a method which can teach a dog how to focus an attention. Target is a object which makes a dog to follow it by nose. You can spread the object with something pleasantly scented for the dog eg. ham.

5. Hunting behaviour - this exercise is used mainly in cats kept only at home. As a smell of birds is very attractive to cats, you can scatter or hang feathers in different places in room to make the cat play and reduce boredom.