panelis

Scientific release

In pursuit of happiness for dogs and their owners

Measuring Pet Food Emotional Performance

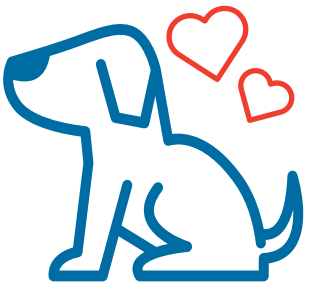
inspired by pets, creative by nature

dianapetfood

Measuring Pet Food Emotional Performance

Dogs, just as other companion animals, experience both negative and positive emotions, and their welfare is highly dependent upon their emotional state (1). An increasing number of dog owners, like other pet owners, enjoy a new relationship with their pets – they have taken on the role of 'pet parents'. Owners have become more attentive to their animal's emotions, because they want to ensure their pet's enjoyment and well-being and share positive and unique interactions with them.

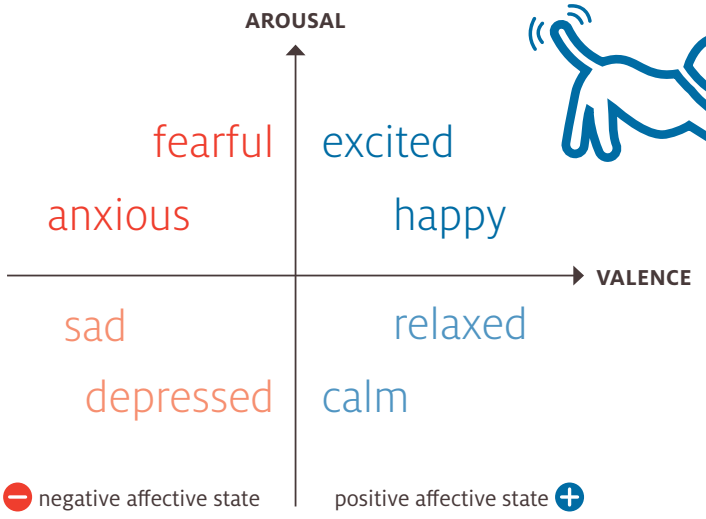
Owners consider meal times a key moment to strengthen the emotional bond with their animal. Therefore, food performance no longer simply focuses on pets' preferences, but takes into account a human dimension: the pet owners' perception of their pet's enjoyment. Dog food manufacturers have a strategic opportunity with products that not only meet the nutritional needs of the dog and satisfy its appetite, but also stimulate an emotional response in the dog that is clearly perceptible to the owner.



What emotions do dogs have?

An emotion can be defined as an intense and brief response to a certain stimulus that is associated with specific changes in the body. Dog owners can recognize in their animal the basic emotions of anger, fear, disgust, sadness, surprise and joy (2). They commonly see their pets are the happiest in anticipation of positive events such as going for a walk or food consumption (3).

A two dimensional view of dogs' emotions



Dogs' emotions can be classified on a two dimensional space within ranging scales of positive to negative feelings (valence) and level of excitement (arousal) (4).

Leading research in emotional palatability

Already at the forefront of last market developments, Diana Pet Food's experts have been developing different methods to define and measure the 'Emotional Palatability' of cat- and dog-food products for some time. Through the Liking Test and kinetics of consumption developed at Panelis, they have already evaluated the palatability performance of a diet by observing the eating habits and behaviors that reflect what an owner perceives as being delicious to his pet.

To further explore the assessment of dogs' enjoyment of food, Diana Pet Food scientists recently combined several non-invasive techniques to measure the effect of food stimuli on several dog emotional indicators. They showed that the level of pleasure brought by a food can be assessed by measuring physiological parameters such as variations in heart rate, and is also recognized by owners through certain behaviors displayed by their dog.

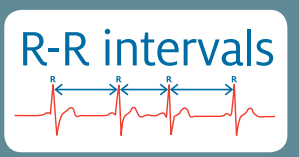
A holistic approach to compare the emotional performance of two dog foods

The influence of two dry dog foods - K1 and K2- on dog emotions at meal time was studied using both physiological and behavioral criteria. The impact of food stimuli on cardiac parameters was measured with expert dogs at Panelis, whilst the impact on behavior was assessed by dog owners at-home.

HR and HRV: listen to their heart

The emotional state of dogs can be assessed by measuring physiological indicators such as cardiac parameters. While heart rate (HR) focuses on the average beats per minute, heart rate variability (HRV) measures the specific changes in time (or variability) between successive heart beats. The time between beats is measured in milliseconds (ms) and is called an "R-R interval".

Meal times, known to elicit positive emotional state, come with variation in the HR but also on different parameters of the HRV (5 & 6). Eating palatable food increases arousal thus causing a higher HR and lower HRV.



Physiological approach
Expert Center

All the dogs received foods K1 and K2 on different given days in a randomized order.

21 dogs — 21 adult dogs from Panelis selected from different breeds and sizes.

HR HRV — Dogs equipped with a Polar® Belt system. Heart rate (HR) and heart rate variability (HRV) parameters recorded.

3 phases — Dogs individually monitored in the presence of a familiar carer, during a 15-minute test period of three consecutive phases.

1. **waiting phase** dog was waiting in the room with the carer
2. **tasting phase** the food tested was regularly delivered to the dog in a form of treats by the carer
3. **post-feeding phase** dog was waiting in the room with the carer

Behavioral approach
In-home

71 dogs — 71 adult dogs of different breeds and sizes, and their owners, involved in the study.

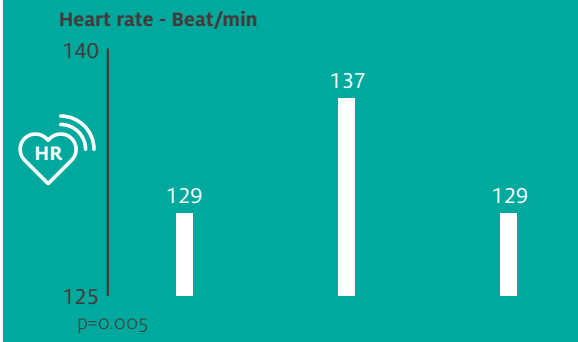
3 months — Dogs habituated to being watched by their owner while eating and being fed a variety of products during a pretest period of 3 months.

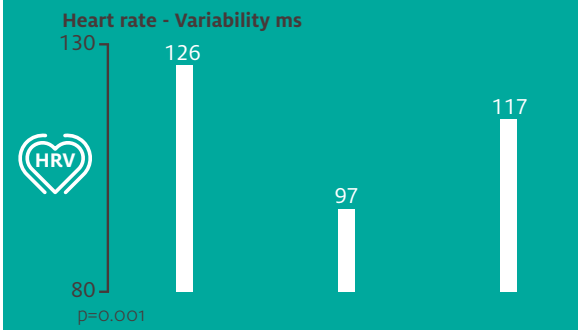
2 days — Each food provided for two days running. Amount of food eaten, meal duration and dog's behavior recorded by the owner.

To evaluate the overall satisfaction of dog owners in relation to the products offered, they were also asked to give a score for their degree of satisfaction on a scale ranging from 1 - "not satisfied at all" to 5 - "very satisfied" and if they would be ready to feed the tested product to their dog again.

New pet friendly physiological measures of emotional performance

Effect of feeding on dogs' cardiac parameters





Feeding phase effect

The results obtained with the expert dogs revealed a higher value of the mean HR and a lower value for the HRV during the tasting phase when the dogs received the food.

→ Food consumption elicits a positive emotional state in dogs.

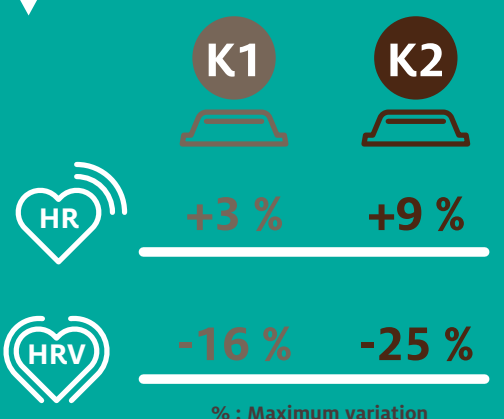
During the last phase, HR and HRV returned to their initial level traducing the transient effect caused by the food.

Product effect

K2 product elicited significant higher variations in HR and HRV than K1, demonstrating that dogs experienced higher excitement when eating K2.

→ Cardiac parameters such as HR and HRV are relevant indicators of dog enjoyment at meal time. They allow the comparison of the emotional performance of two petfood products.

Effect of product on dogs' cardiac parameters variations



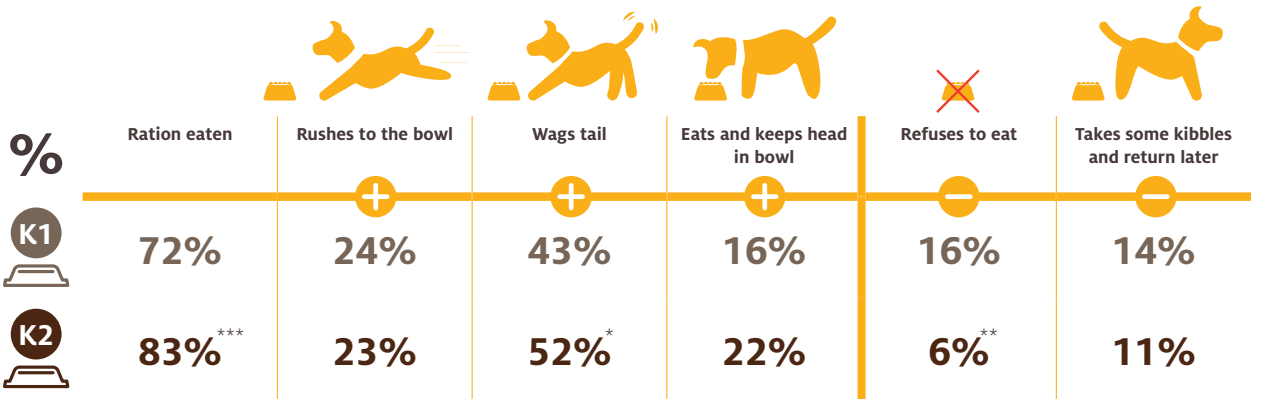
% : Maximum variation of the parameter during the test

New behavioral measures of emotional performance

Results obtained during the in home trial brought additional information on the emotional performance of the products. K2 consumption induced more positively perceived dog behaviors such as tail wagging, while negatively perceived attitudes such as food refusal were more reported with K1.

On average, dogs ate more of their ration of K2 compared to K1 confirming that the second diet was more palatable for dogs.

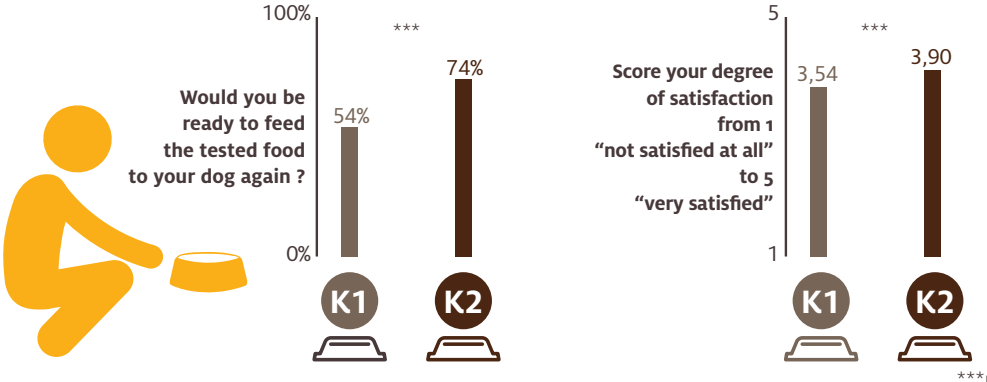
Dog behavior according to food



***p<0.001 ,**p<0.01, *p<0.05

Finally 74% of pet owners declared they were ready to feed the product K2 to their dog again against 54% for K1. This preference was also confirmed by a significantly higher satisfaction rate for K2.

Owner satisfaction toward food



***p<0.001

Pet owners are able to detect behavioral variation displayed by their dogs when facing different foods. These behaviors directly influence their satisfaction and their propensity to offer the same product again.

➔ ***Not only dogs experience and display different level of enjoyment but also their owners are able to pick up on these fine differences!***

An emotional outcome

A new focus on the emotional status of pets has emerged, because the role of pets in our lives has changed drastically over the last decades. Due to major changes in society, culture, and economy, pets have become full family members in many households, as their owners' relationship with them has evolved into a parenting role.

As a global leader and pioneer of high value solutions to improve pets' well-being and pet owners' satisfaction, Diana Pet Food has observed this trend emerging and has invested in various research projects to explore the emotional responses of pets to food stimuli.

➔ This latest study confirms that food stimuli not only impacts on dogs' emotions but also on the owners' perception of their pet enjoyment.

Emotional responses in pets are now a way of measuring the performance of pet food. This is a groundbreaking step forward in widening perspectives in the definition of pet food palatability and performance and enriches differentiation opportunities on the pet food market. For the pet food industry, it signifies the start of something exciting!

Interested to know more about our research or to run some tests? Please, do not hesitate to contact us:

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