

Tools and methodologies for the behavioural assessment of free-roaming dogs



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Overview

- What drives behaviour?
- What is agonistic behaviour and how it can be expressed?
- Why do DPM programmes need to assess risk of agonistic behaviour and how can they assess it?





What drives behaviour?

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What influences behavioural choices?



Previous experiences and learning

Health status

Pre and post-natal environment

Current environment

Individual genetics

Emotions and motivations



Socialisation



- Senses continuing to develop and more mobile, although may still be uncoordinated
- Sensitive period of behavioural development
 - High capacity to learn and willing to approach novel stimuli (first phase)
 - Ideal time to experience everyday life
 - Early socialisation with littermates and breeder
 - Later socialisation with wider/owner environment, other humans and animals (fear response more likely)

Regular positive interactions with:

- **All genders and ages of people**
- **People dressed in different clothing or with different personal appearance**

What is habituation?



Puppy becomes accustomed to non-threatening environmental stimuli after repeated exposure and learns to ignore them, if they are:

- Not biologically important
- Low intensity
- Predictable
- Puppy is in a low arousal.

Habituation to everyday experiences:

- **Confinement/restraint**
- **Social isolation**
- **Traffic**
- **Thunder**

Other ongoing risk factors



Inconsistent and punitive training and handling methods



Trauma and past experience



Age-related factors



Lack of mental or physical stimulation



Stress-induced dishabituation



Emotions and motivations

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What causes behaviour?



Emotional State

Describes the emotion(s) felt by a person or animal at a given point in time.



Motivation

A need or motive that drives a person or animal to complete a certain behaviour.

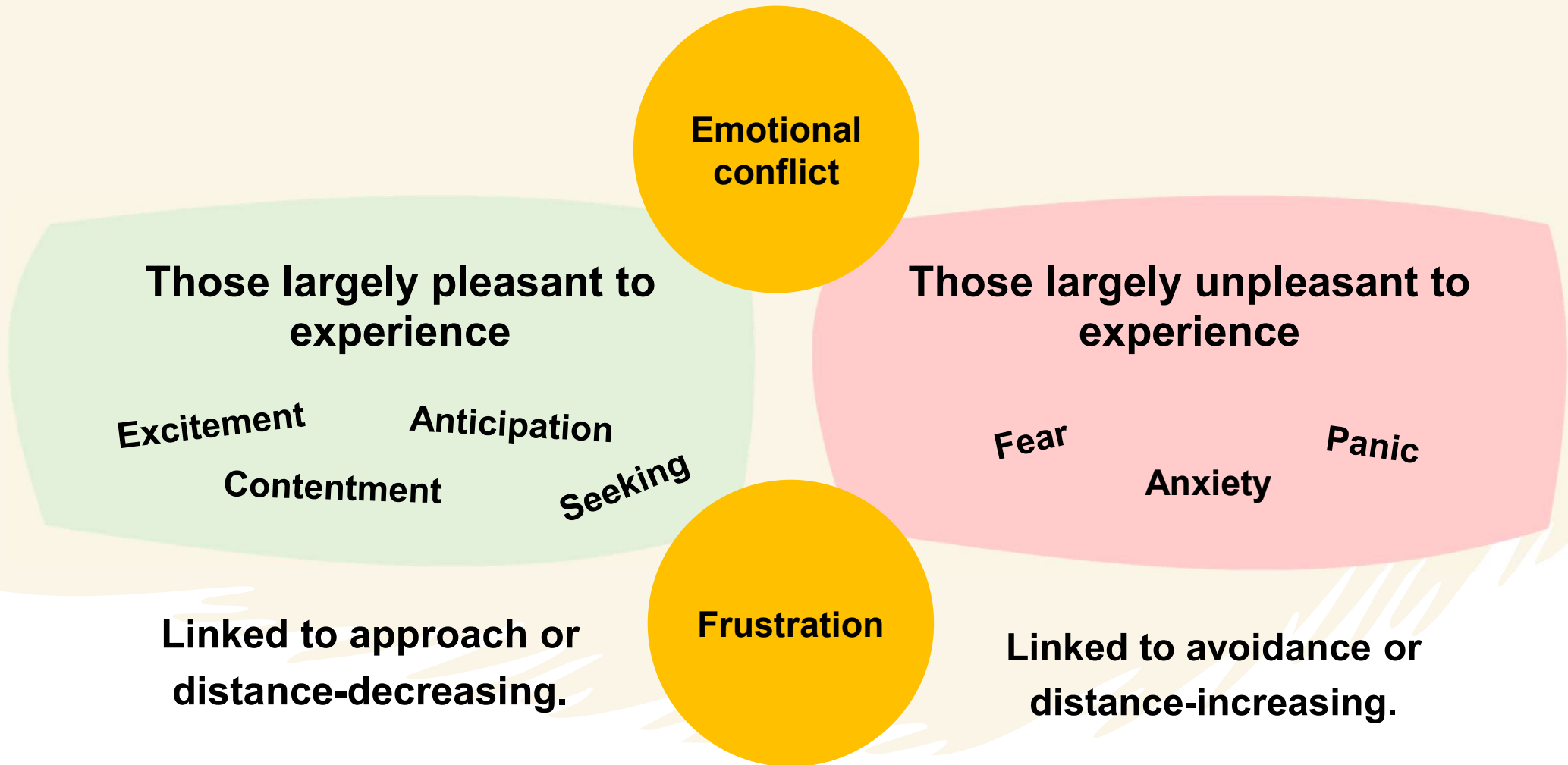


Behaviour

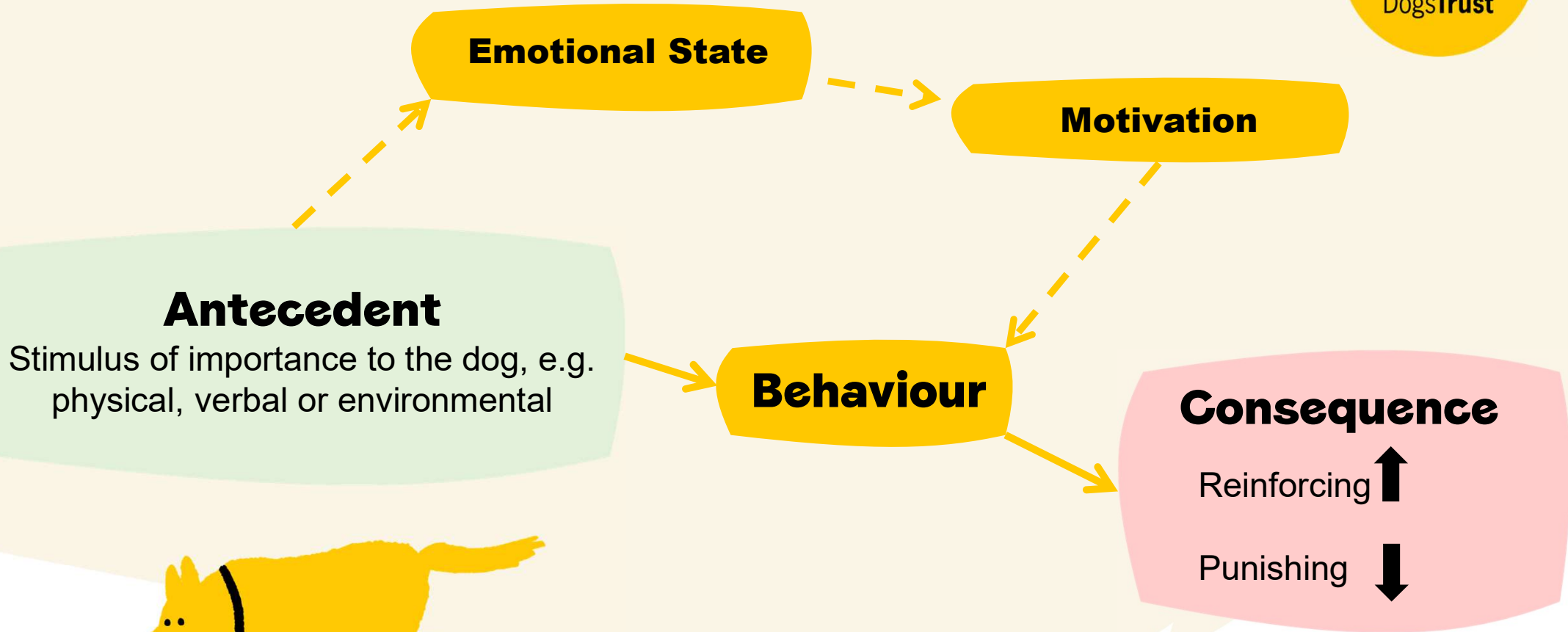
The way a person or animal behaves in response to a given situation or stimulus.



Emotions can be broadly placed into two categories:



What drives specific behaviour?



Reinforcing versus punishing consequences for dogs



Reinforcing

- Joy
- Relief
- Anticipation

- Food
- Toys
- Performance of motivated behaviours, e.g. chasing 'prey', defending resources/puppies

Punishing

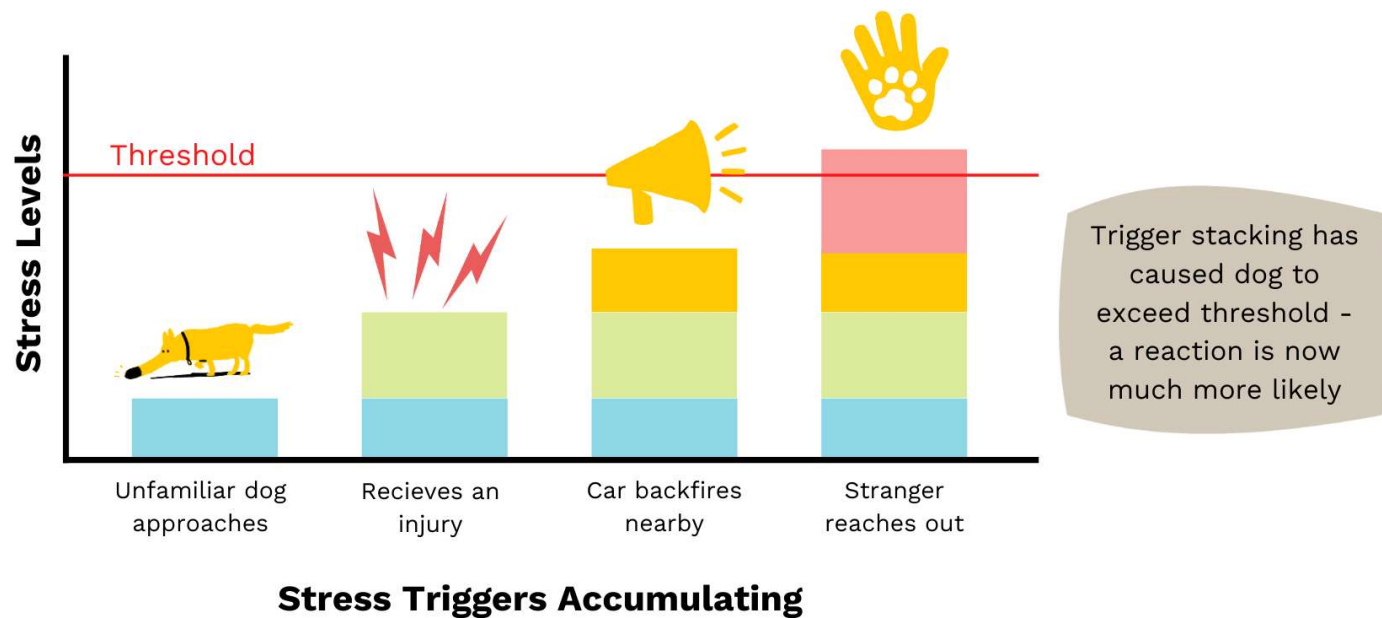
- Pain
- Fear
- Frustration

- Aversive equipment
- Loss of something valued

Trigger stacking

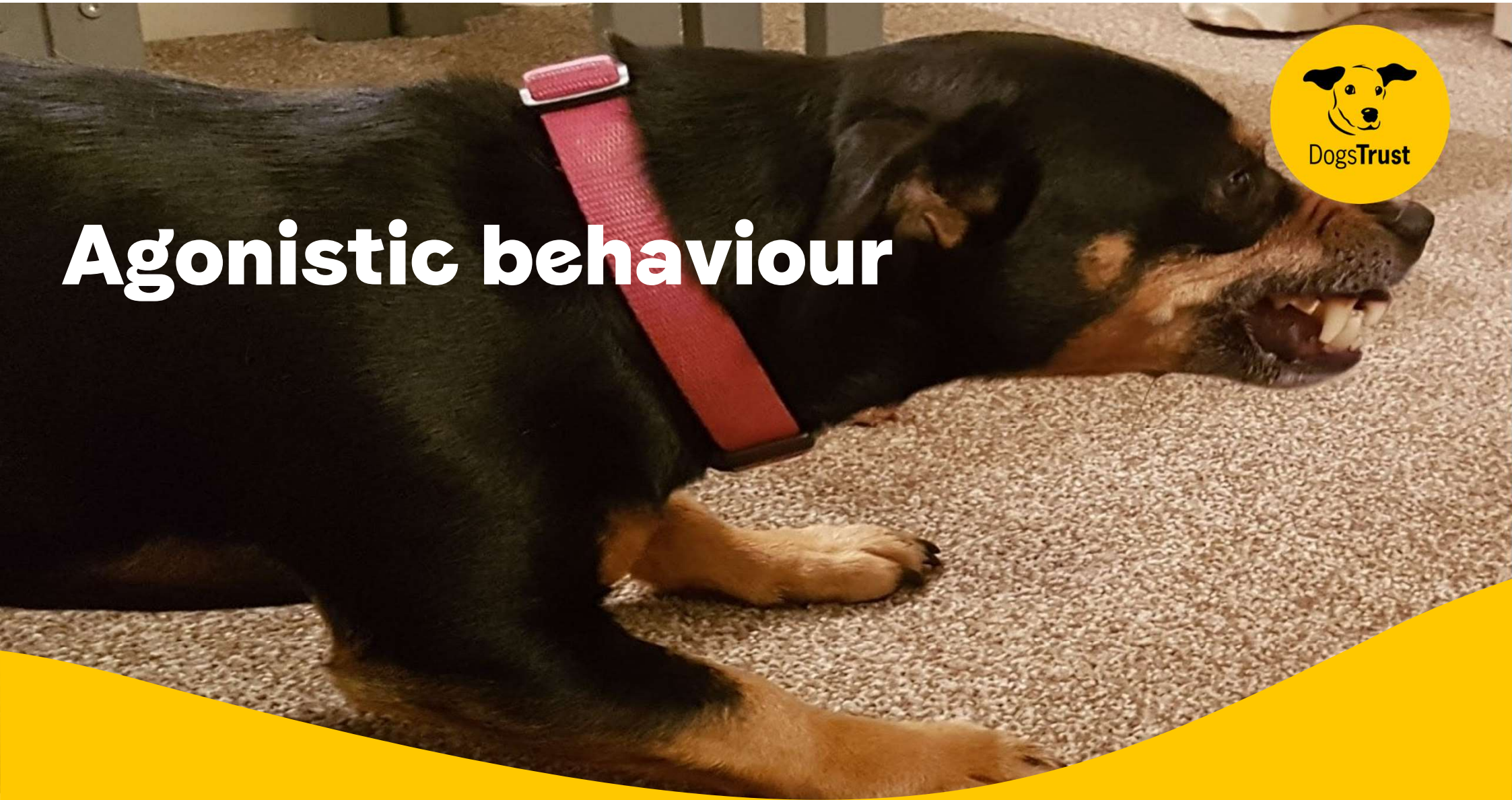


- Dogs have **thresholds** regarding the **inhibition** of behaviours
- If a dog is highly **aroused**, they will approach their threshold. As they pass this threshold or 'tipping point', they may react much more strongly to a 'normal' trigger than usual, due to the build-up of arousal.
- In other words, they can **no longer control** their own behavioural response – you may feel like you have been here yourself;





Agonistic behaviour



Fear and social conflict



- Agonistic behaviours aim to increase the distance from a perceived threat.
- The **perception** that they, or something they value, is under threat, motivates them towards:
 - Resource competition (gaining access to valued resources)
 - Resource guarding (defence of valued items)
 - Self-defence
- If the behaviour is successful, they are likely to repeat it again next time they're in a similar situation.

Agonistic behaviours



Agonistic behaviour includes any social interaction with a person that involves aggressive, appeasement, or avoidance behaviours.

- Avoidance
- Appeasement
- Aggression

Distance-increasing behaviours

- Freezing
- Displacement behaviours

Additional behaviours that might be seen in response to social conflict



Predicting future behaviour

Predicting behaviour – Why?



Predicting undesirable behaviour is a priority for many organisations processing dogs.

Human-directed aggression is of particular concern:

- Indicates compromised dog welfare
- Significant health and safety risk to:
 - staff/volunteers
 - current owners/future adopters or fosterers
 - the wider public.

Predicting behaviour – Why?



Understanding a dog's behavioural needs can help increase safety and aid in decision-making:

- Improve dog welfare
- Increase staff and public safety
- Increase adoptability
- Increase successful adoptions and reduce return rates
- Allow training and behavioural-modification plans to be written

Only if dog has previously been habituated to the home environment and can cope in kennels

Sheltering is not ideal and strongly discouraged for free-roaming dogs.

Behaviour Assessments or Temperament assessments?



Example definition:

Temperament, personality and individuality describe the phenomenon that individual behavioural differences are consistent over time and/or across situations

- Possible to assess with single vs multiple tests / observations?



Behavioural assessments



- Battery of tests developed by animal behaviourists
- Ad hoc procedures developed by shelters
- Ratings of individual dogs; dog's behavioural history gathered from a familiar proxy (community)
- Observational assessments - dog's behavioural response to naturally occurring stimuli are recorded

Combination of both, e.g. published test battery modified according to user preference

Combination of both

Battery of tests



Exposing dogs to a series of provocative stimuli / situations meant to simulate challenges they may encounter when interacting with people:

- Pinching flank to mimic interaction by a child
- Introducing a person in unusual dress to test tolerance of range of human appearances
- Exposing to other dogs to see if they are aggressive to conspecifics
- Fake hand to test resource guarding

Error rates: likelihood of many false positives and false negatives occurring



“Even under unreasonably optimistic [simulated] conditions favouring the performance of a behaviour evaluation, the chance of a dog who tests positive actually being positive is about the **same as flipping a coin.**”

(Patronek and Bradley, 2016)

Discussion re predictive behaviour assessments



Behavioural assessments cannot predict completely accurately.

Some factors, such as the behaviour of humans with whom dogs interact, cannot be accounted for.

Behavioural assessments can assess dogs in only a limited number of simulated situations.

High stress levels in shelters may affect behaviour more than what would be expected in 'normal' every day circumstance.

Definitions of aggressive behaviour differ, could some of these actually be appropriate responses?.

Are they actually quite manageable?

e.g. food guarding (Marder *et al*, 2013)



Assessing risk of aggressive behaviour in DPM programmes



Risk assessment



Hazard

- means a biological, chemical or physical agent in, or a condition of, an animal or animal product with the potential to cause an adverse health effect
- one hazard of interest in Dog Population Management programmes is agonistic behaviour.

Risk

- means the likelihood of a hazard occurring, and the likely magnitude of the biological and economic consequences to animal or human health.

Risk assessment

- means the evaluation of the likelihood and the biological and economic consequences of entry, establishment and spread of a hazard.

**risk rating = likelihood of agonistic behaviour
x severity of agonistic behaviour impact**

Why assess risk of agonistic behaviour?



- Any agonistic behaviour can escalate to a bite.
- Bites are in themselves a public safety concern.
 - This is amplified in countries where rabies is still endemic.
- The release or return of dogs expressing agonistic behaviours before or during capture needs to be assessed to protect public safety from future bites.
- This decision needs to be timely, to safeguard dog welfare and staff/volunteer safety.
 - Dogs with no experience of confinement will not cope well in kennels, holding them for longer than minimum requirements (e.g. recovering from neutering surgery or rabies-watch) is unethical.



Bite risk assessment



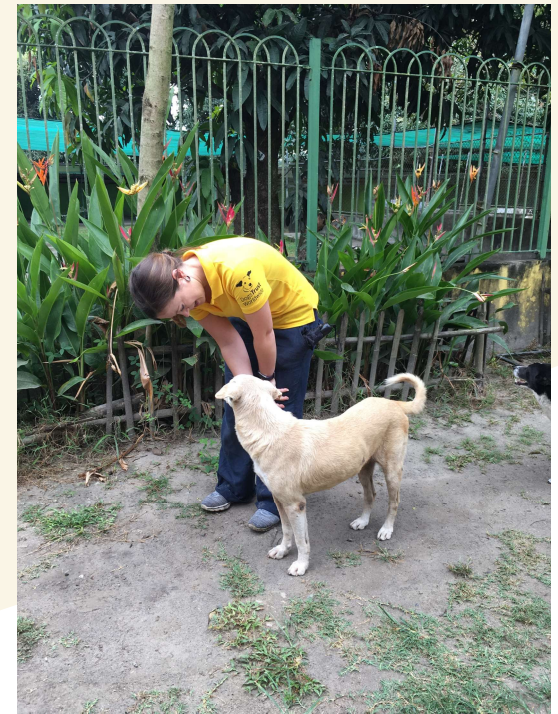
- Enables a thorough consideration of all aspects of the dog's behaviour, and the environment from which they were captured, that may pose a bite risk.
- Assists in the decision-making process so that the most appropriate outcome possible can be reached for the individual dog.
- It is not to provide a cut-off score at which a dog is considered unsafe to release, return to owner or rehome.



Bite risk assessment



- Carry out risk assessments on each dog before reaching an outcome decision (release, return, rehome, PTS).
- Consideration of all aspects of the dog's behaviour, which may pose a risk to them or others.
 - Severity (less relevant if rabies is of concern?)
 - Generalisability/predictability
 - Ease of management
 - Medical opinion



Insight gathering



1. Gather information from members of the community (history)
2. Observe dog in situ (current):
 - before capture
 - restraint and transfer
 - holding
 - further handling



Collecting information from the community (dog's source)



- If owned – dog's owners
- If free-roaming - dog feeders, people who regularly observe the dog, people who may have been bitten
- Behavioural history interviews should be carefully worded – community members may not be accurate in interpretation of behaviour

Risk factors for aggressive behaviour



Collect behavioural histories of dogs at the time of relinquishment/capture whenever possible:

- agonistic behaviour towards people
- aversive reactions to environmental stimuli
- inadequate or inappropriate socialisation and habituation
- trauma
- aversive, inconsistent or inappropriate training
- poor rearing conditions and/or poor parentage



Risk factors for aggressive behaviour



In situ observations of:

- Aggressive, avoidant, appeasing behaviours in response to familiar and unfamiliar people
- Aversive and inconsistent interactions from people
- Poor community understanding of dog behaviour and communication
- Inadequate management of social interactions with other dogs (e.g. pet dogs)
- Dog acquired as a status or protection/guard dog
- High social density of dogs and people
- Unpredictable or unstable environment
- Social isolation
- Unmanaged health and medical needs
- Dog's welfare needs not being met



Is risk mitigation possible (and ethical)?



Strategies to reduce the likelihood of dog bites to people.

Environmental changes possible for effective risk management.

Interventions with community to recognise any risk posed by dogs and the need for safe management.

Interventions with community to increase willingness to meet dog's needs.



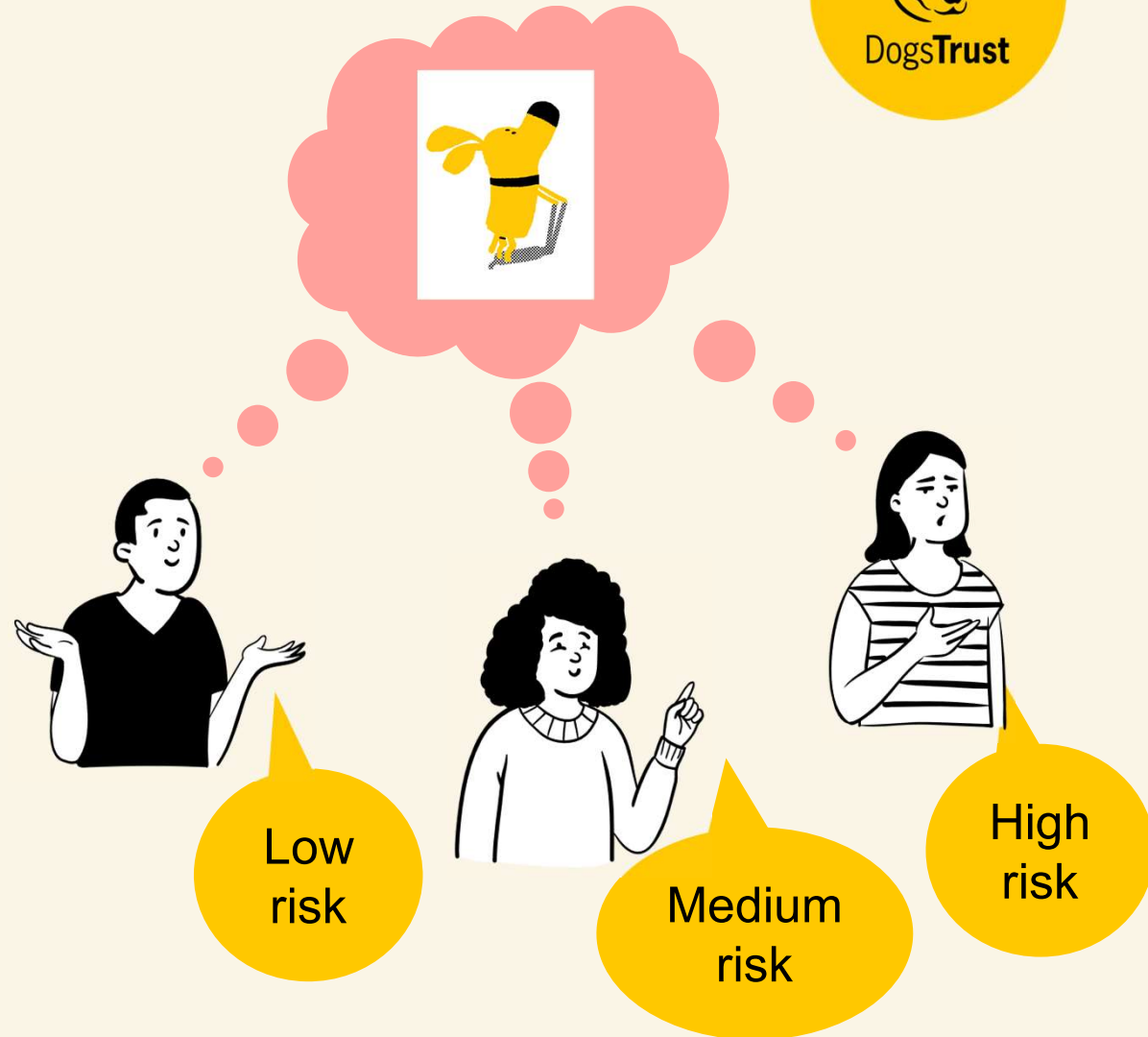
Downsides of risk assessment



- Lacks sensitivity (Patel et al 2009)
- Subjective

There is no 'gold standard' risk assessment tool and, in practice, any instrument needs to be used in conjunction with clinical judgement.

(Patel et al 2009)



Summary

- Aggressive behaviour in dogs is complex and multifactorial.
- Fear and frustration are two primary emotional states that drive its development and display, alongside other agonistic behaviours, which may precede a bite.
- Individual differences, including individual genetics, health and experience, influence a dog's predisposition to aggressive behaviour.
- Social and physical environmental factors will also influence how a dog responds to social conflict.
- Risk assessments should include taking a history from the community and making observations.
- Use risk rating to decide on the likely safest and welfare-friendly outcome for the dog.

