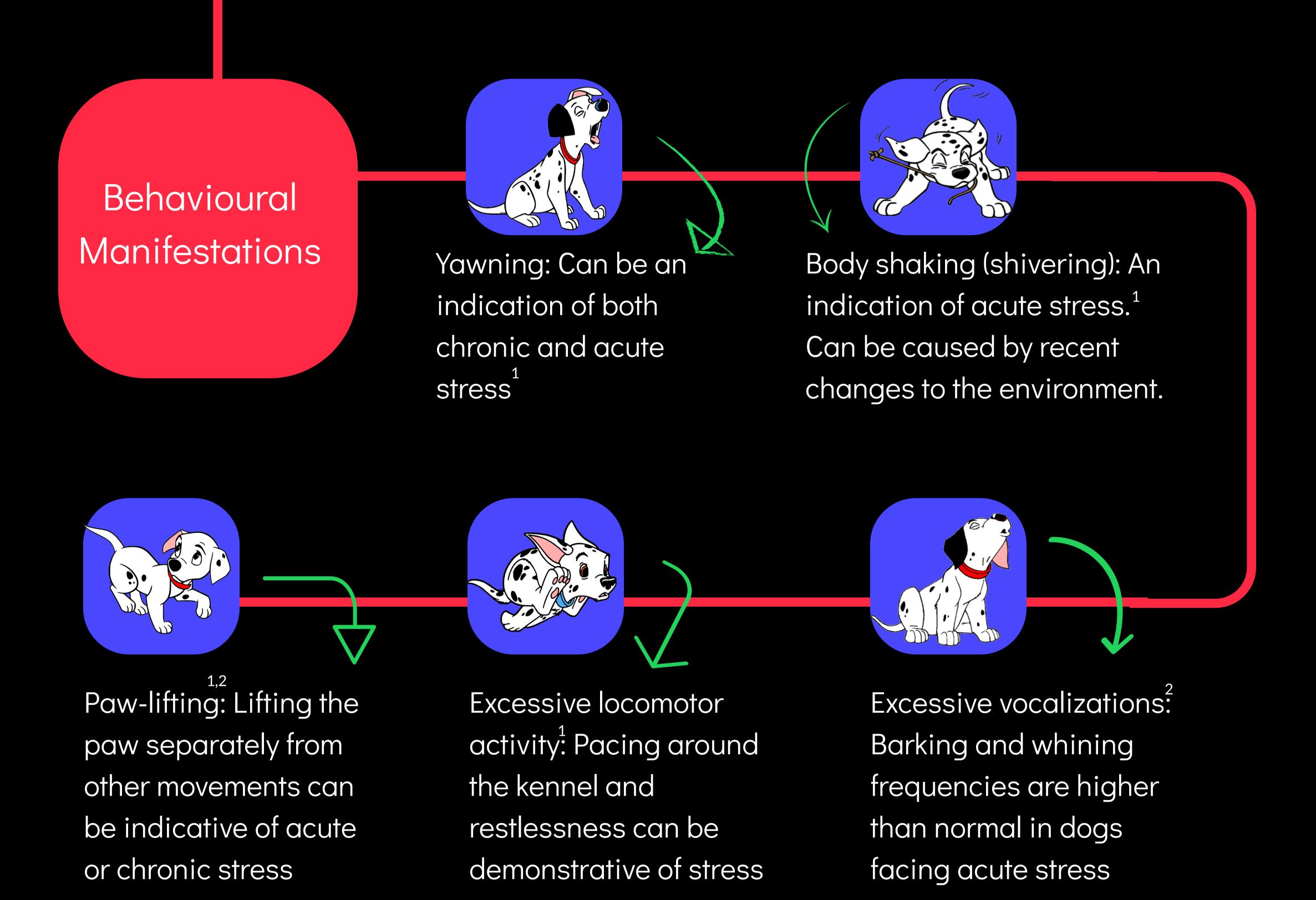


Domestic dogs can face a wide range of stressors upon entering rehoming kennels or new foster homes. The confined space and limited interaction with conspecifics during kennelling can be especially stressful...

What are some ways that this stress is manifested in dogs?



How are hormones associated with the production of these behaviours?

Stressors can trigger changes in physiological parameters such as changes in hormone

- concentrations and subsequently alterations in corresponding heart rate measures³
- Onset of kennelling has been associated with increases in cortisol and adrenaline concentrations
- Although hormones and behaviours are much entangled, their exact associations are very complex and future research should focus on further defining hormonal effects on certain behaviours

How might targeting the nose help decrease the stress of dogs?

The olfactory acuity of dogs is incredibly high. Using enrichment that targets the strongest sensory system within an animal is the best means of benefiting that animal and increasing its welfare.

Presenting lavender through diffusion has shown to be associated with physiological parameter changes that indicate increasing parasympathetic activity ⁶



'REST AND DIGEST'

A scent introduced via enrichment methods may simply provide a novel stimulus that distracts the dog from other stressors present.⁷



Did you know?

Dogs have hundreds of cilia per olfactory receptor cell, while 8 humans only have 25! Changing the scents regularly helps to:

- avoid habituation
- revitalize the novel effect
- of the scent
- maximize distraction

Which methods have been used to expose dogs to olfactory enrichment?

Diffusers^{3, 9, 10, 11}

Cloths¹²



 Essential oils have been processed through oil burners to release the scent as airborne molecules



Diffusion of oils has been effective in altering behaviours in multiple studies!

- Essential oils have been applied to individual cloths and placed into the center of a kennel for a dog to sniff.
- The frequency and duration of behaviours have changed following scent exposure via the cloth

Cloths are effective!

Knotted rope toys applied with scents:

- have been successful in increasing the exploratory behaviours of dogs.
- have increased the attention given to both scented and unscented toys



Which scents have been found to have influences on the behaviours of kennelled dogs?

Lavender



- Has been found widely to have calming effects in dogs
 - ↑ resting⁹
- vocalizations^{9,11}
- \downarrow moving⁹

Ginger



Ginger essential oil applied to a cloth:

- ↑ sleeping
- ↓ moving
- ↓ vocalizations

Valerian



Valerian essential oil placed on a cloth¹²

- ↓ vocalizing
- → moving

Chamomile



Diffused chamomile essential oil has been shown to:⁹

- ↓ moving
- ↓ vocalizing

However, the effects were less extreme compared to lavender

Coconut



Coconut essential oil applied to a cloth:¹²

- ↑ sleeping
- ↓ vocalizing
- ↓ moving

Vanilla



Vanilla essential oil placed on a cloth:¹²

- ↓ vocalizing
- ↓ moving

Peppermint



Diffusing peppermint essential oil has been associated with?

- ↑ standing
- ↓ resting
- ↑ moving
- ↑ vocalizing

Peppermint has been found to have stronger effects on behaviours than rosemary

Rosemary



Diffused rosemary essential oil has?

- tanding
- ↑ moving
- ↓ resting

Future implications of these results (Shelters & Foster homes)

Supervised Olfactory Enrichment

Applying various calming essential oils (individual or combined) to:

- linen or fleece material inside of holee rollers or inside of a snuffle box
- soft toys that require supervision (knotted rope toys, durable chew toys,
 - etc)



Unsupervised Olfactory Enrichment

Applying calming essential oils (individual or combined) to:

- collars or worn bandanas
- cloth and attaching it to a wall
- bedding or blanket material
- snuffle mat (Optional: Hang onto wall, combine with kibble or treats)



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