Recognizing and Preventing Stress in Therapy Dogs

Dr. Lisa Maria Glenk, MSc.

2019 IAHAIO Triennial Conference
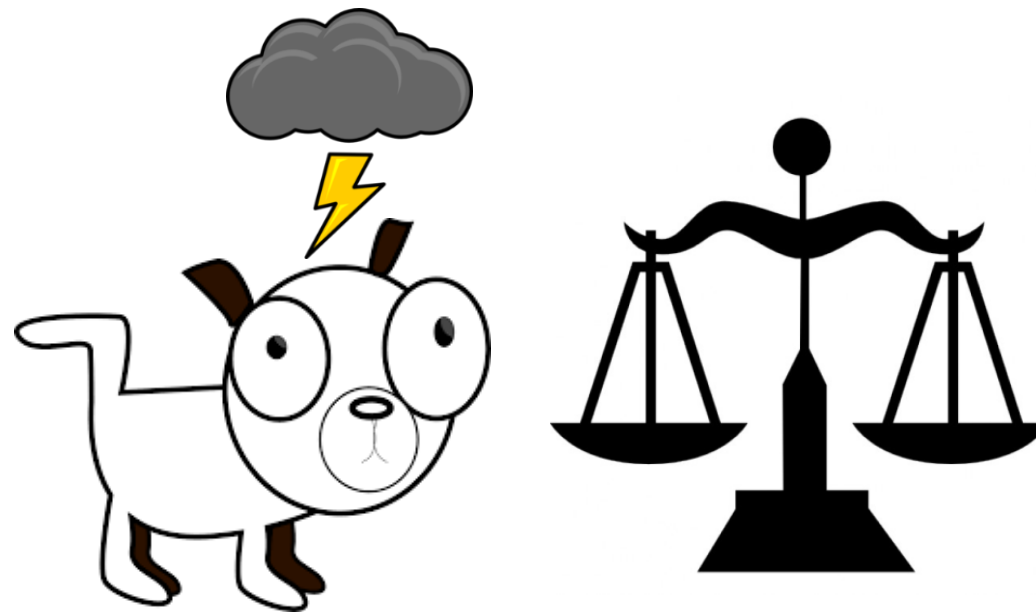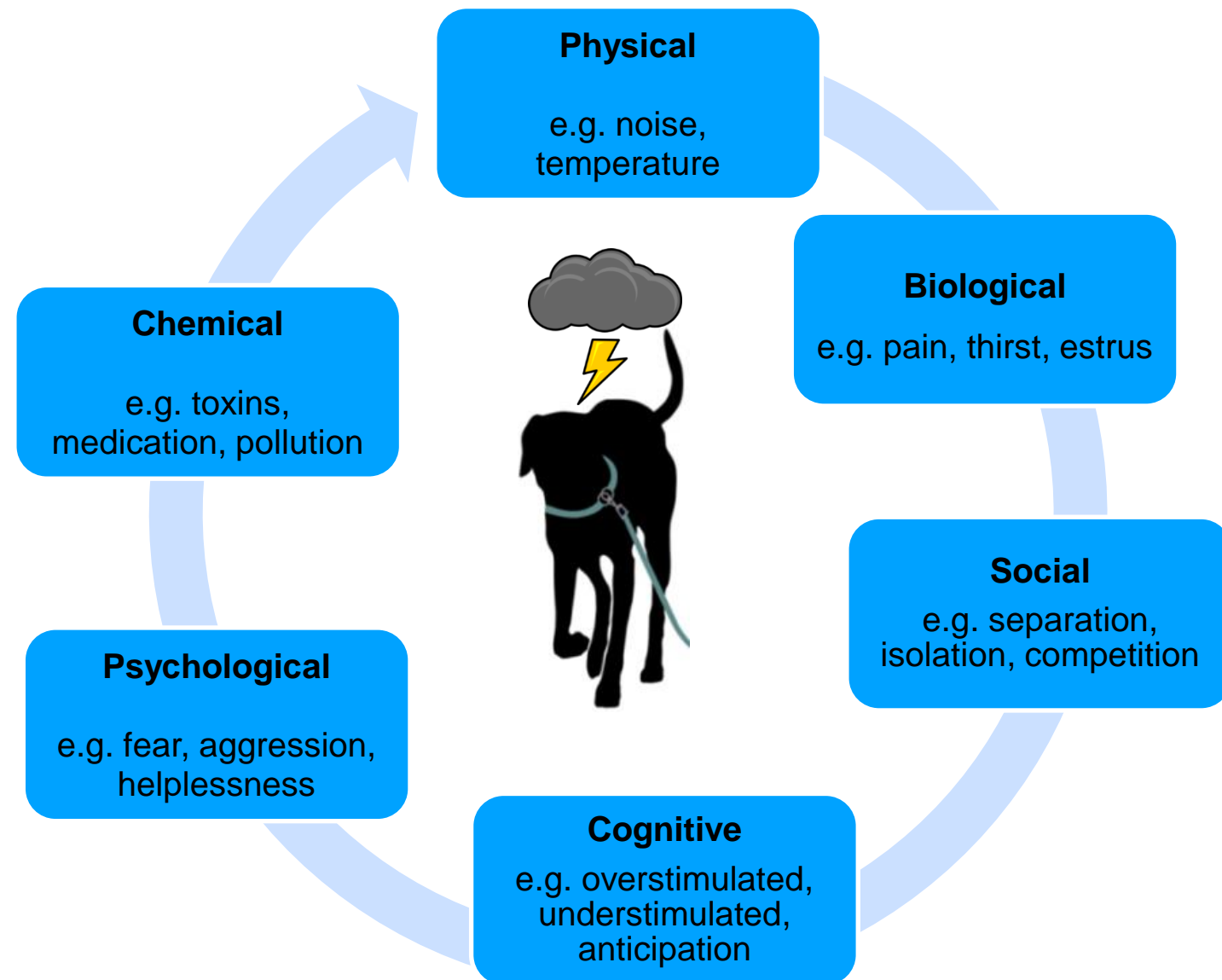
- stimulus (= stressor)

- dealing with challenge

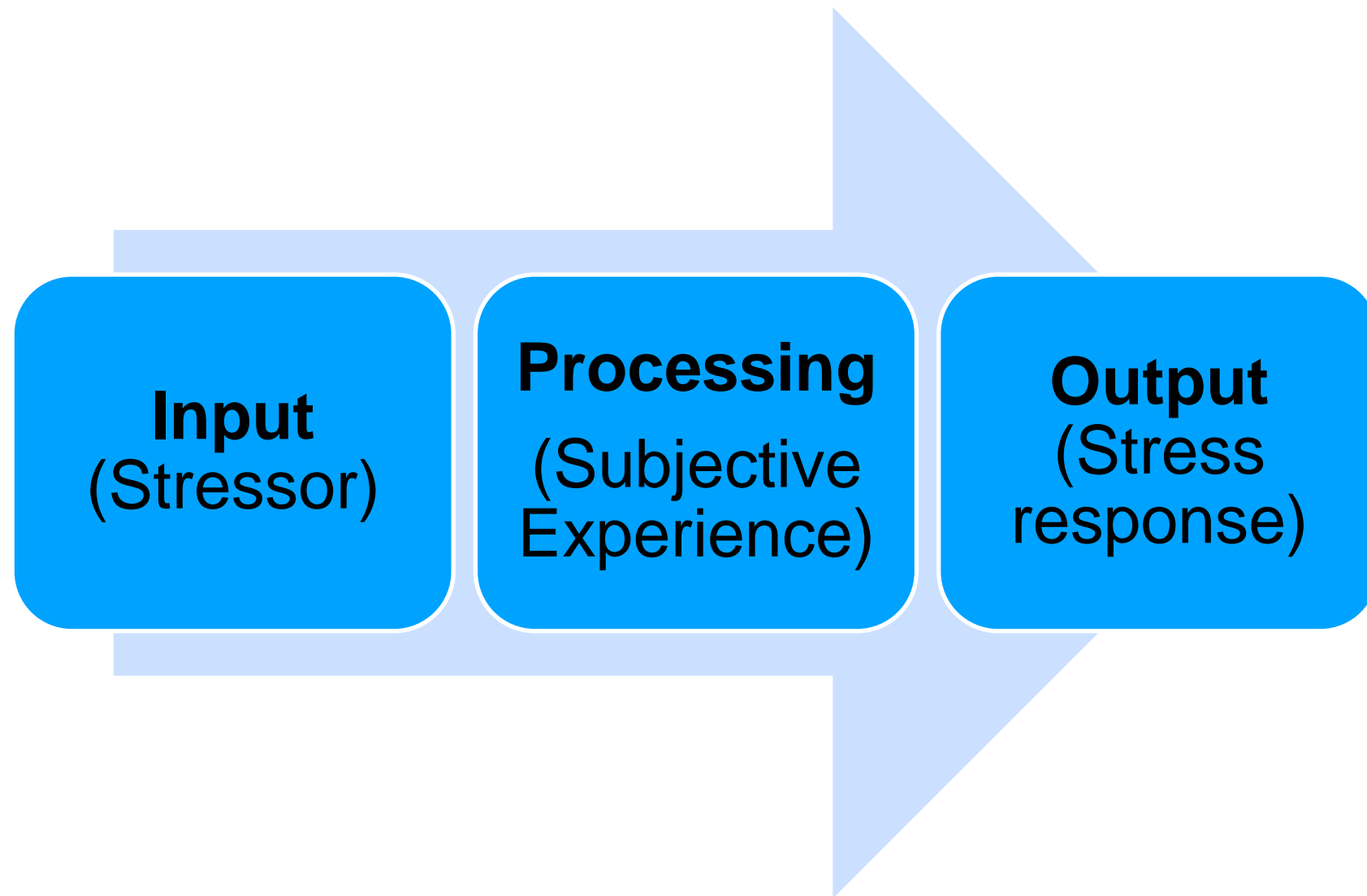- evolutionarily rooted → survival in case of a (potential) threat

Goal: Coping and maintaining balance

Stressors

Physical

e.g. noise, temperature

Biological

e.g. pain, thirst, estrus

Social

e.g. separation, isolation, competition

Cognitive

e.g. overstimulated, understimulated, anticipation

Psychological

e.g. fear, aggression, helplessness

Chemical

e.g. toxins, medication, pollution

Stress response

Input
(Stressor)

Processing
(Subjective
Experience)

Output
(Stress
response)

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Stress hormone pathways

Noradrenaline, Adrenaline Cortisol

Hypothalamus

Cerebral cortex

Pituitary
Amygdala

Hippocampus
Brainstem

Locus ceruleus

Pituitary gland
Adrenal gland
Kidney

https://vcahospitals.com

Noradrenaline
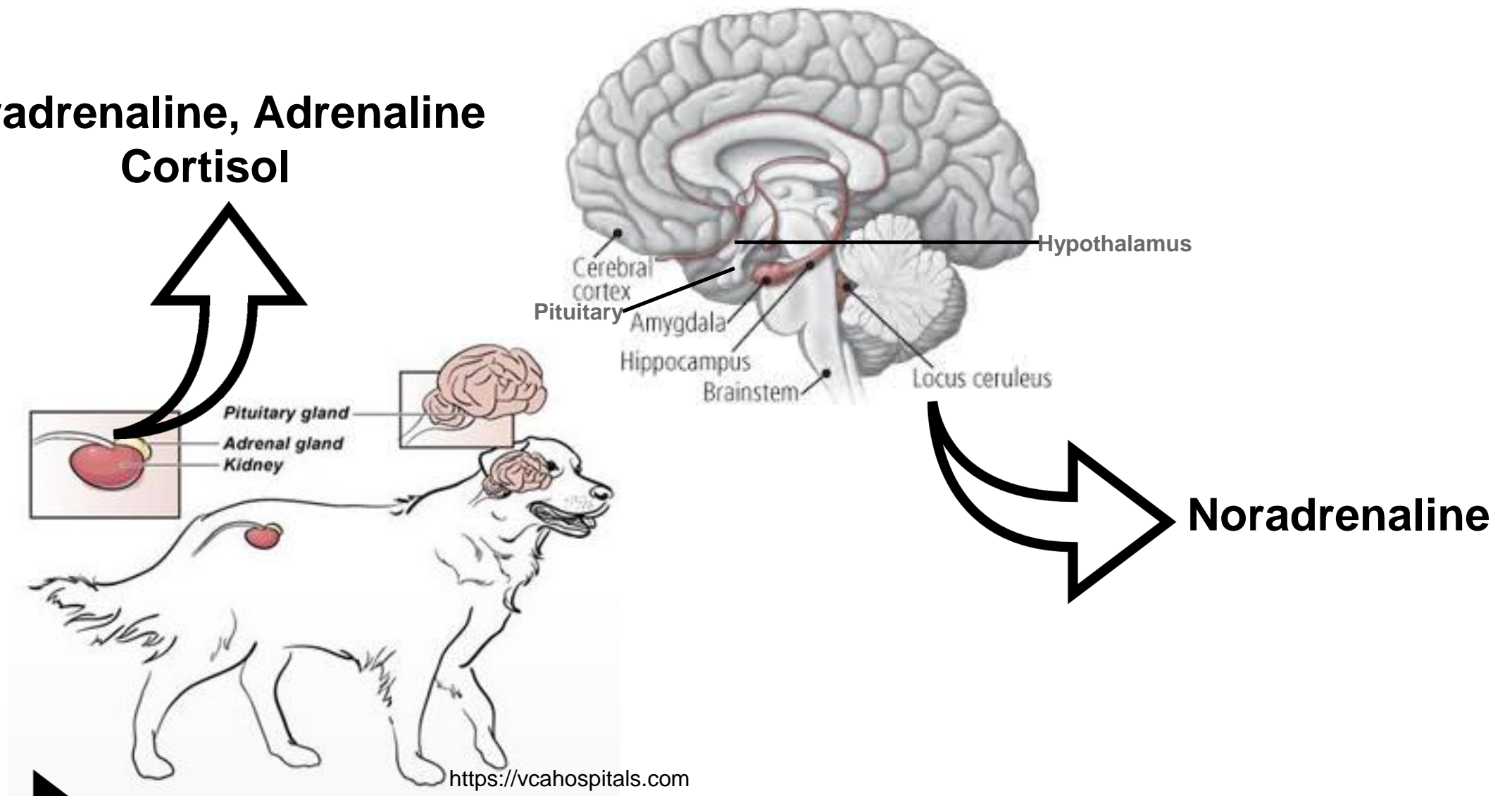
Metabolic, cardiovascular and immunomodulatory effects

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Acute stress consequences

Central nervous system:
↑ Attention, Alertness, Aggression, Performance
↓ Pain

Periphery:
↑ Heart rate, blood pressure
↑ respiratory rate
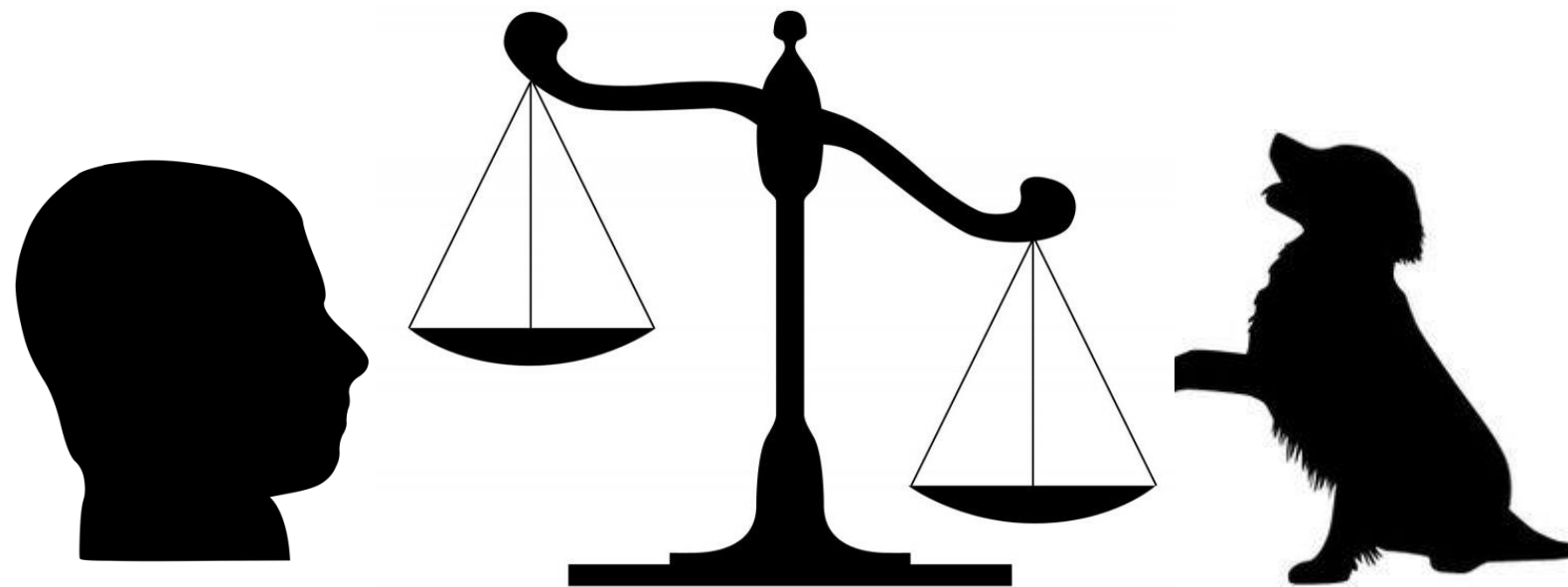↑ Blood supply (brain, heart, skeletal muscles)
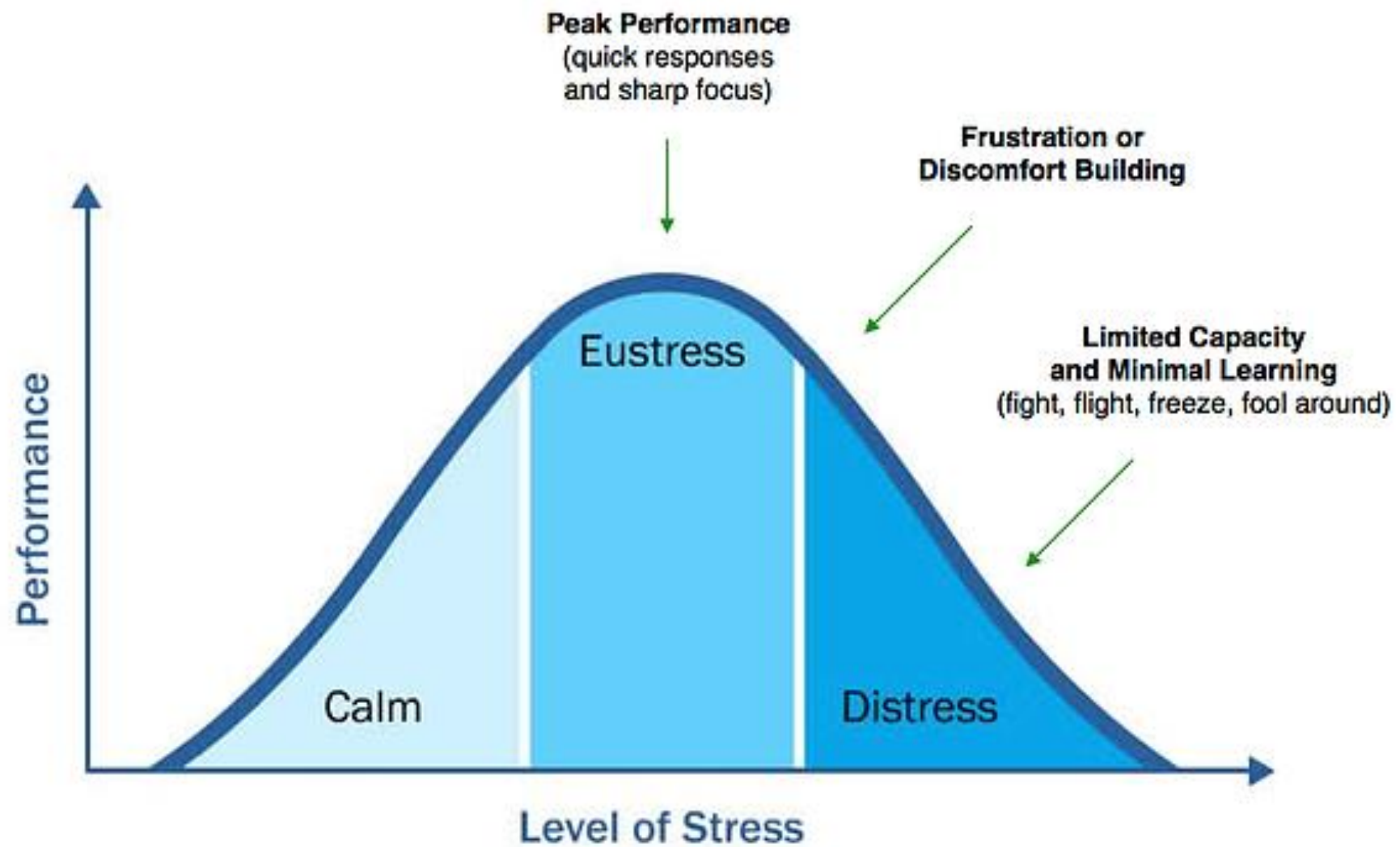↑ Immune function
↓ Inflammation
↑ catabolic metabolism (sugar and fat)
↓ vegetative function (reproduction, digestion, growth)

dosis facit venenum

Eustress versus Distress

Peak Performance
(quick responses
and sharp focus)

Frustration or
Discomfort Building

Limited Capacity
and Minimal Learning
(fight, flight, freeze, fool around)

Performance

Eustress

Calm

Distress

Level of Stress

Adapted from The American Institute of Stress

Stressed or balanced?

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Dogs…

→ …have limited-none involvement in daily routines, acitivites and participation of AAIs

→ …rely on human empathy and expertise regarding best practice

→ **Recognizing stress** = Precondition for handling consequences

Do dog owners recognize stress?

- 60%: provide a correct definition
  20%: believe it's a short term condition without any relevance

- Owners who recognize subtle signs of stress
  → dog moderately-very stressed

- Owners who fail to recognize subtle signs of stress
  → dog minimally stressed

- Agreement between dog owners and veterinary experts:
  Pain > Stress

(Mariti et al. 2012; Lind et al. 2017)

Screening criteria for AAI volunteer teams

- **Demographics**

  ✔ Name (both), age (both), breed

  ✘ Dog size/weight, type of collar, trainer/facility

- **Dog skills**

  ✔ Accepting stranger, down/sit/stay on command, reaction to other dog

  ✘ Restraining hug, treat offered, passing between strangers, staggering/gesturing individual

- **Further criteria**

  ✔ AAI certificate, temperament (dog), vaccines (dog)

  ✘ Requirements for handlers

(Hartwick & Binfet, 2019)

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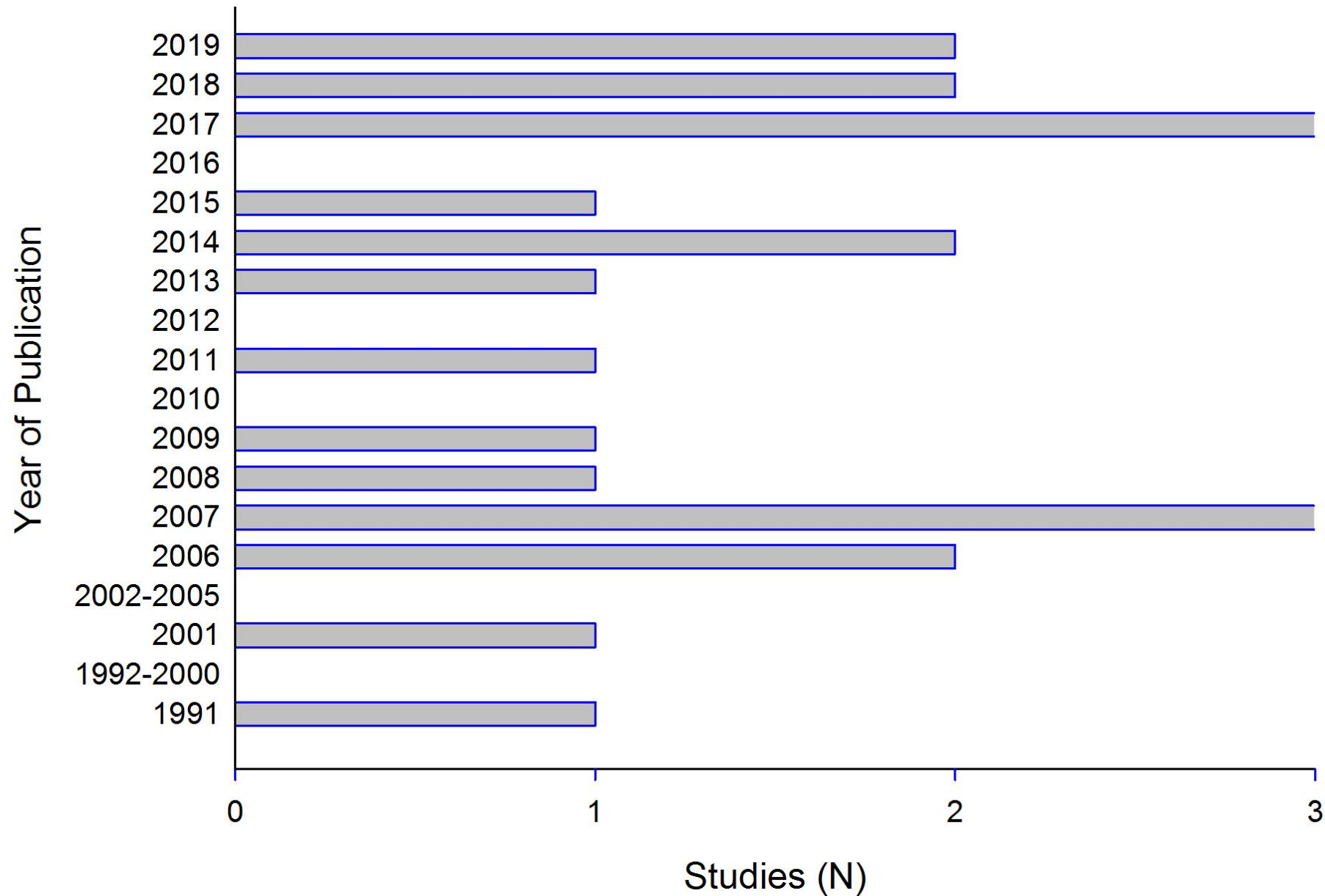
Handler/Responsible person
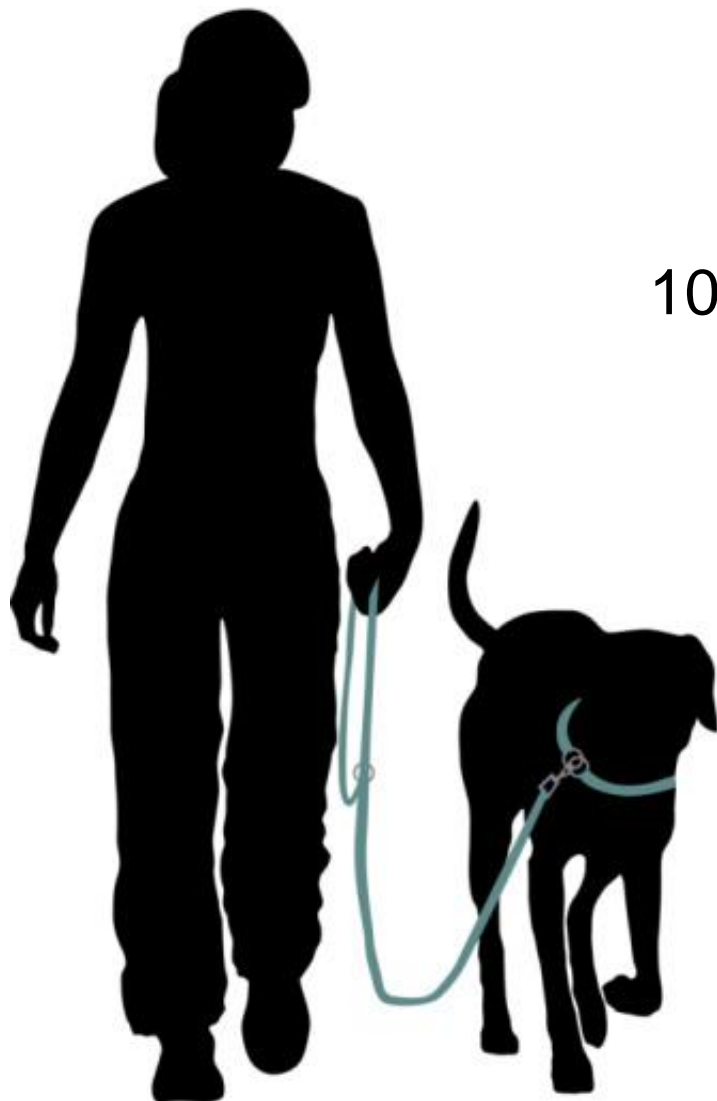
50% of working AAI team

100% of team responsibility for the process

(Frederickson-MacNamara & Butler, 2006)

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Research on therapy dog welfare

(Iannuzzi & Rowan 1991; Heimlich 2001; Zamir 2006; Haubenhofer & Kirchengast 2006 + 2007
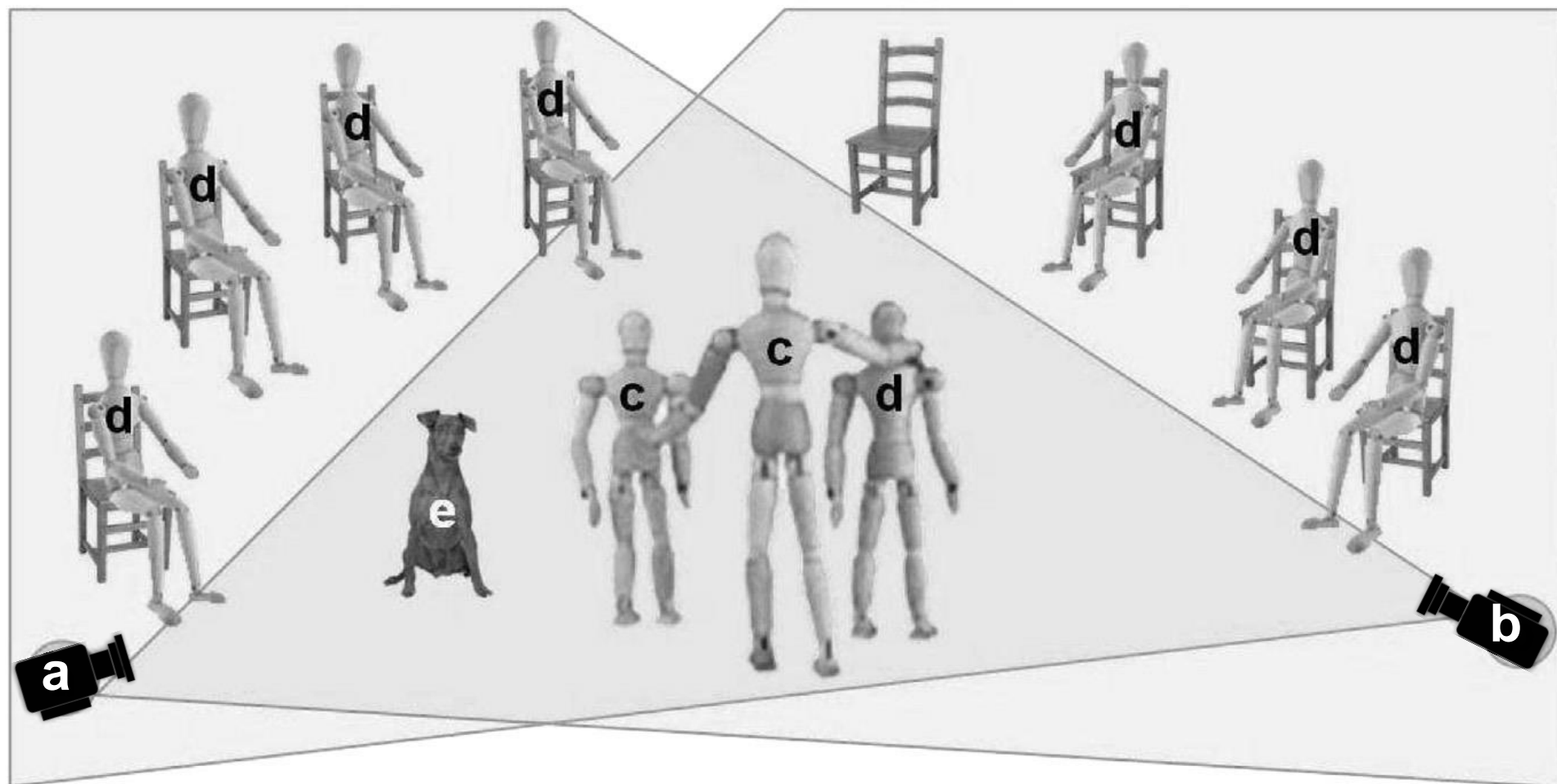Uetake et al. 2007; Hatch 2007; Piva et al. 2008; Marinelli et al. 2009; King et al. 2011
Glenk et al. 2013 + 2014; Ng et al. 2014; Koda et al. 2015; Palestrini et al. 2017; Pirrone et al. 2017
Glenk, 2017; McCullough et al. 2018; Colussi et al. 2018; Clark et al., 2019; Uccheddu et al. 2019)
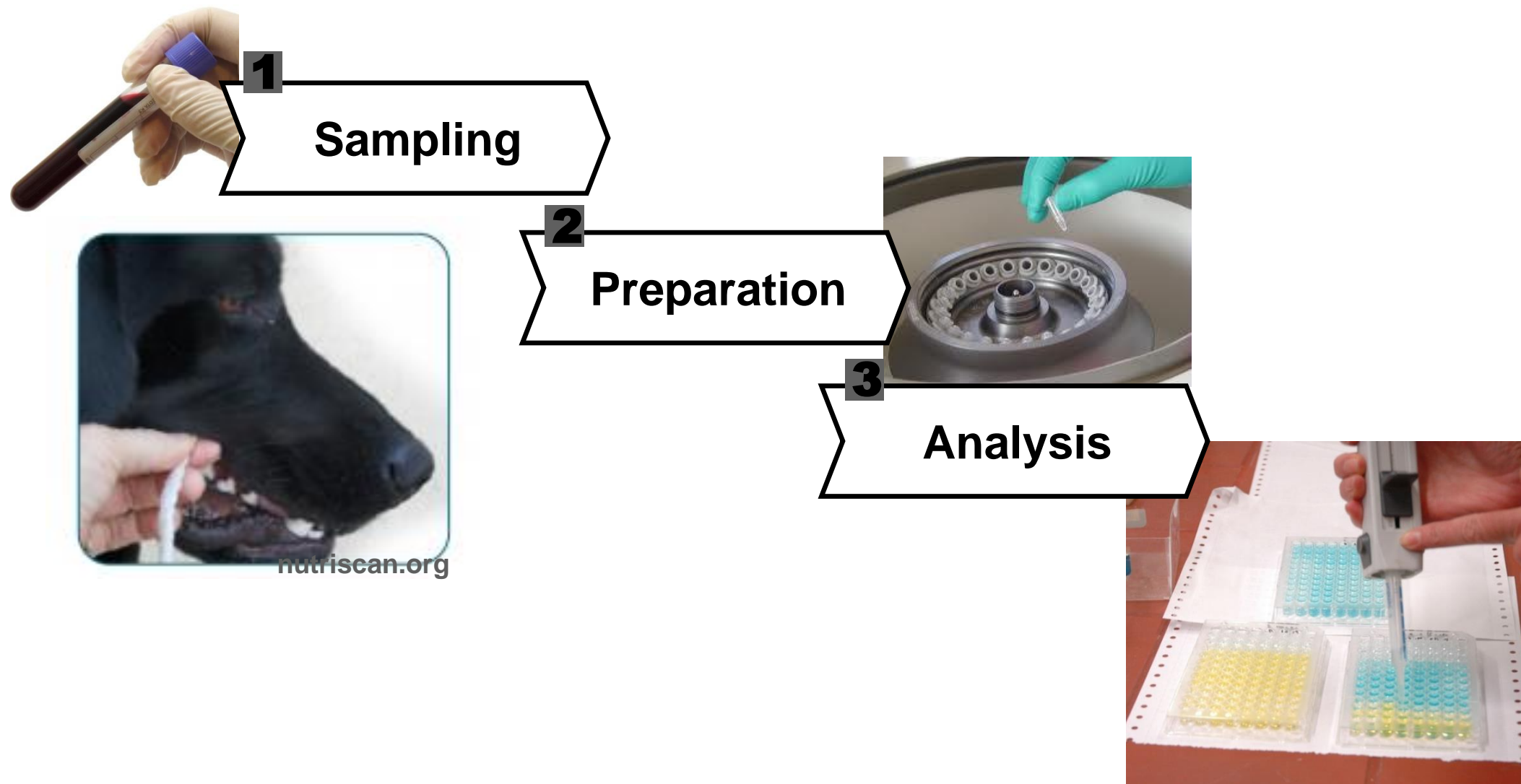
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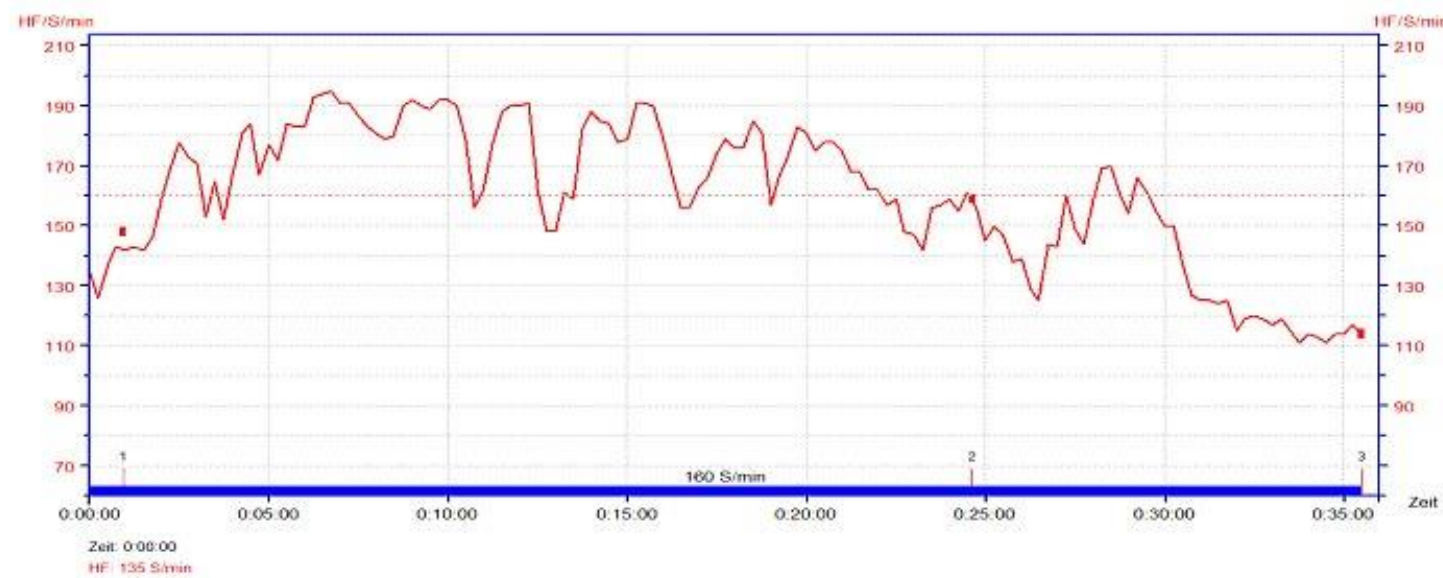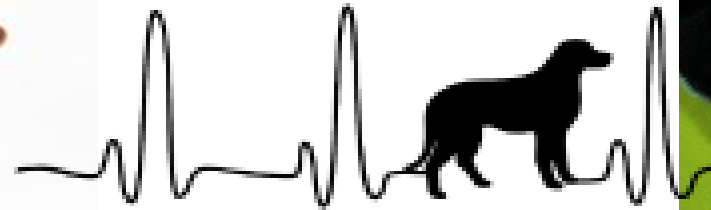
Research methods: Behaviour monitoring

© Noldus Information Technology

(Glenk et al. 2014; modified)

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Research methods: Biomarker in body fluid

1 Sampling

2 Preparation

3 Analysis

nutriscan.org

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Research methods: Heart rate monitoring

http://www.kleintierecho.com

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Research methods: Handler protocol, questionnaire, interview


niemtinviet.com.vn

calm   anxious

Research results

- More stress-related behaviors in younger dogs (< 7 years) (King et al., 2011; McCullough et al., 2018; Clark et al., 2019)

- Dogs rated as minimally stressed had lower post-session cortisol levels (Koda et al., 2015)

- No differences pre- to post session in dogs rated as severely stressed (Koda et al., 2015)

- Higher cortisol levels → more stress-related behaviors, less sociopositive behavior (McCullough et al., 2018)

- Dogs who scored higher on fear of strangers → less sociopositive behavior (McCullough et al., 2018)

Research results

Glenk et al. 2013
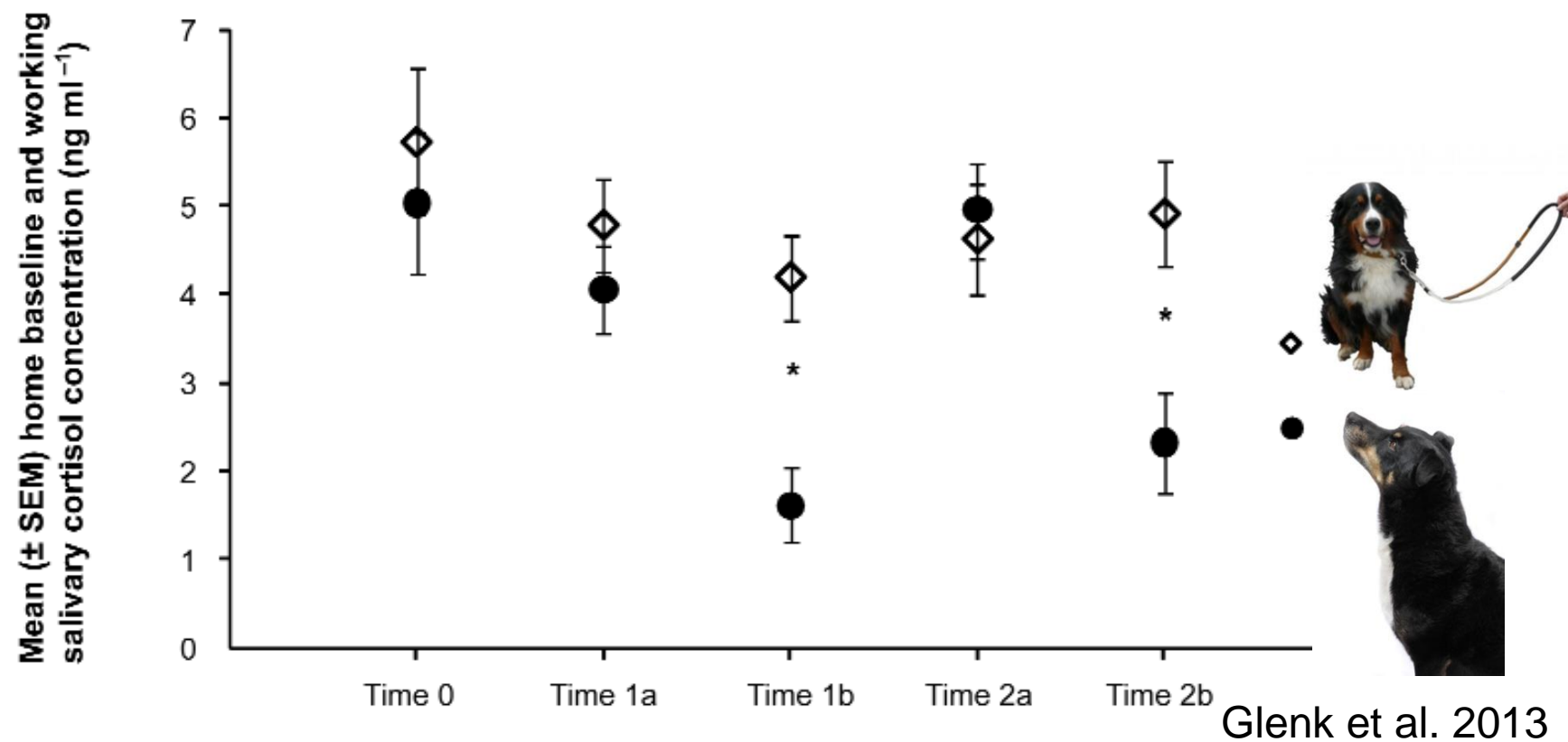
- "Tail down" and "Lip licking" most frequent stress behaviors (Uccheddu et al., 2019)

- Elevated adrenaline and noradrenaline levels if dogs were restraint for longer periods (Uetake et al., 2007)

Research results

- No differences in cortisol levels and behavior on working and control days (Glenk et al., 2013; Ng et al., 2014; Pirrone et al., 2017; McCullough et al., 2018)

- Higher heart rates on working days (Pirrone et al., 2017)

- Higher stress ratings and cortisol levels in unfamiliar environment (Ng et al., 2014; Koda et al., 2015)

- Noradrenaline concentrations (pre- to post session) decreased over time in repeated AAIs (Uetake et al., 2007)

- ↓ Cortisol pre- to post session correlated with „Lip Licking" and „Body shake" (Glenk et al., 2014)

- 2 sessions/week resulted in lower cortisol levels (pre- to post session) compared to 1 session/week, 2 sessions/month, 1 session/month (Clark et al., 2019)

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Welfare challenge: Environment

Florock

Daily Telegraph
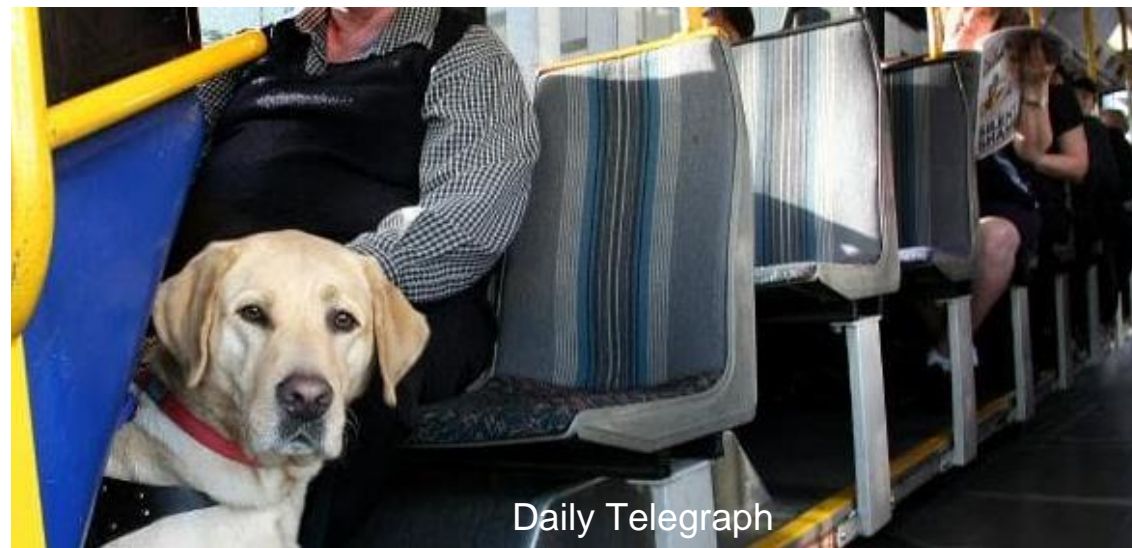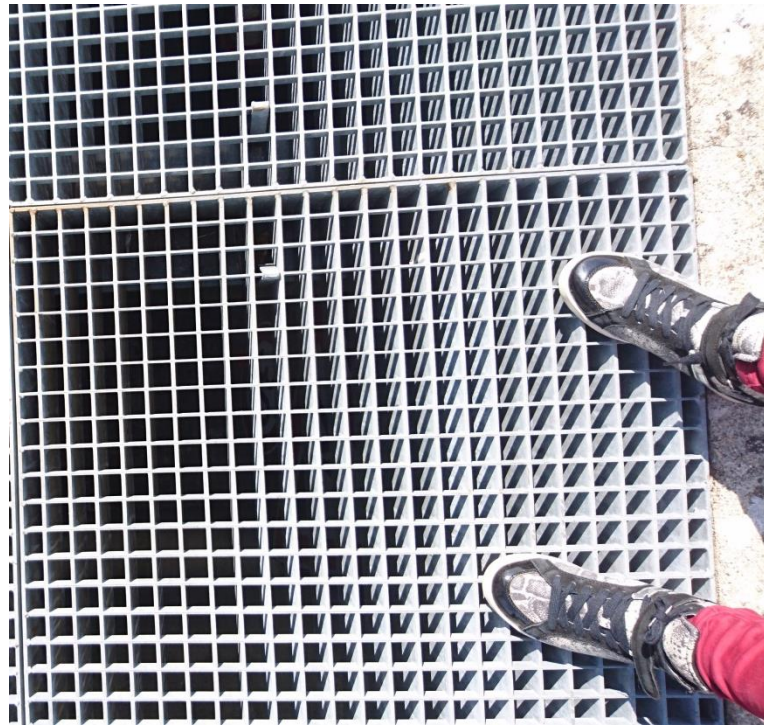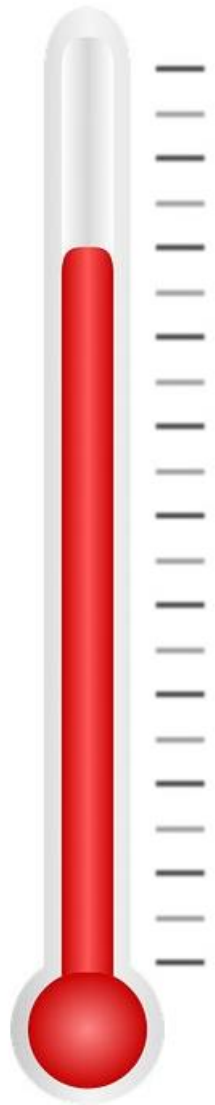
Welfare challenge: Accepting strangers

- Inappropriate behavior toward the therapy dog initiated by recipients **and staff members**

(Hatch, 2007; Ehren, 2014)

V2.mp4

V1.mp4

- Informed consent for staff members, behavioral instructions for recipients **before rather then during or after** introduction of the therapy dog

Welfare challenge: Accepting strangers

- Stranger with friendly voice, facial expression approaching at normal pace → high contact seeking


- Stranger approaching in threatening manner (slow movements, staring eye contact, upper body slightly bent forward) → gaze avoidance, vocalizations, backing away

(Vas et al., 2005, Györi et al., 2010)

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Welfare challenge: Relationship/ Bond

- Human-dog bond resembles mother-child bond (i.e. exploration, secure base, separation distress)

(Horn et al., 2013; Prato-Previde et al., 2003; Topal et al., 1998)

www.uleth.ca

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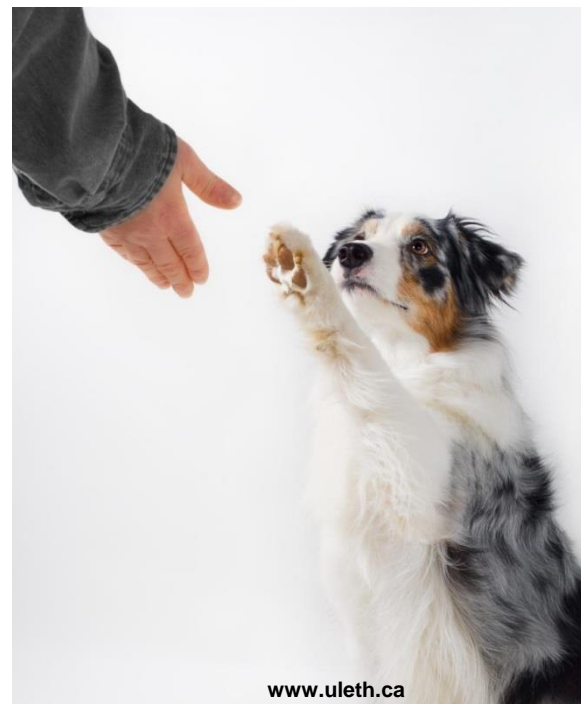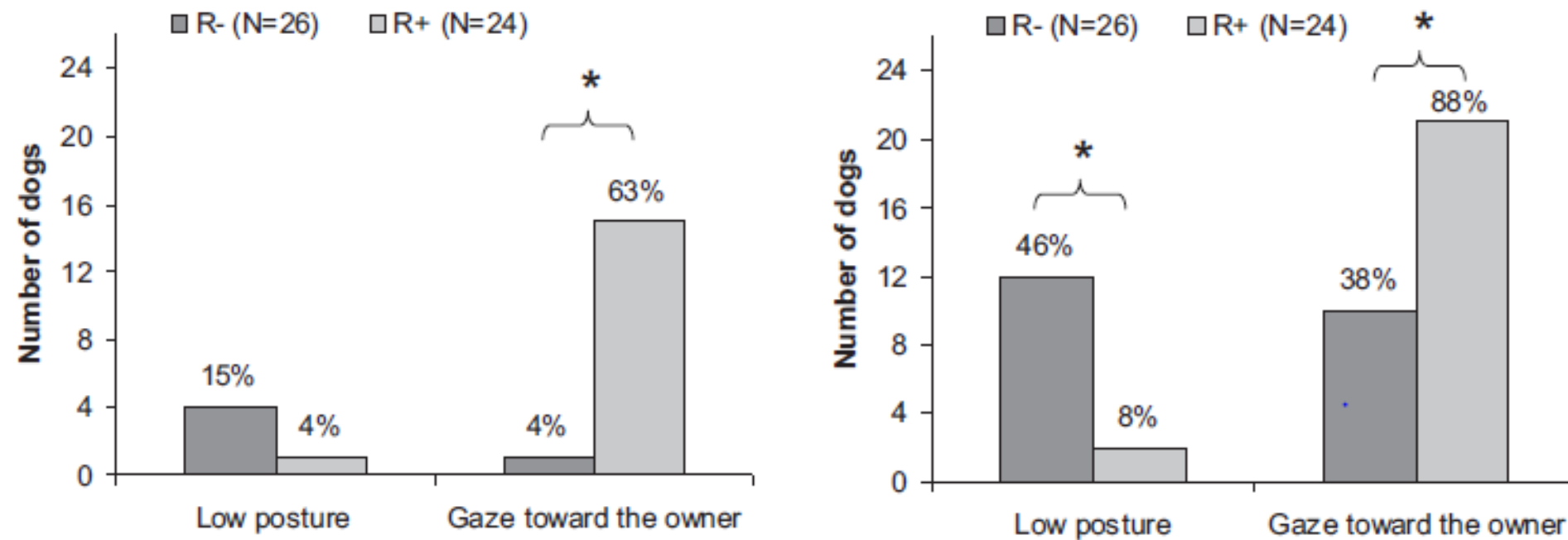
Welfare challenge: Relationship/ Bond

- Behaviors between securely and insecurely attached dogs in AAAs did not differ

- more time in proximity to and touching the recipient

- more gazing at dog handler

- Insecurely attached dogs gazed more often at the handler
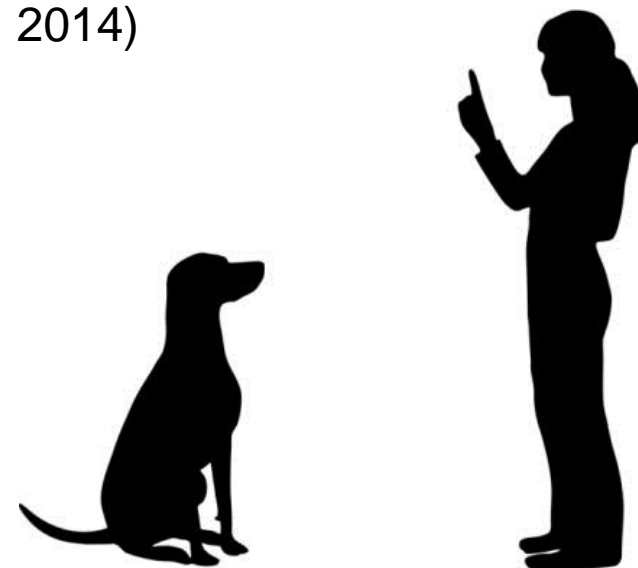
(Wanser & Udell, 2019)

- More joint attention and gaze synchrony between dog and handler during AAIs

- Individual preferences for close physical contact with recipients

(Pirrone et al. 2017)

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Welfare challenge: Training methods

(Deldalle & Gaunet, 2014)

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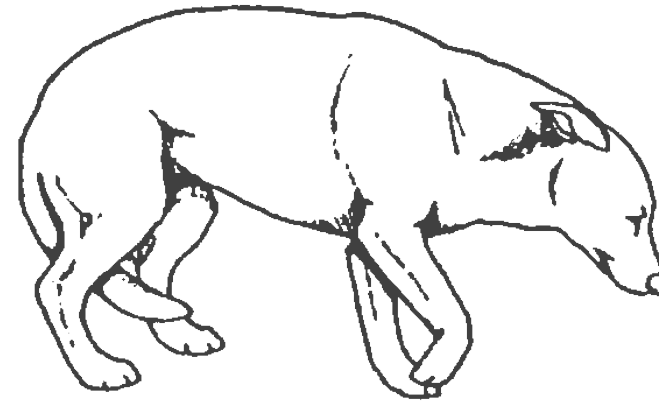## Welfare challenge: Training methods

- Reward based training → higher scores of obedience and more learning effects

- Causal relationship between punishment and problematic behavior

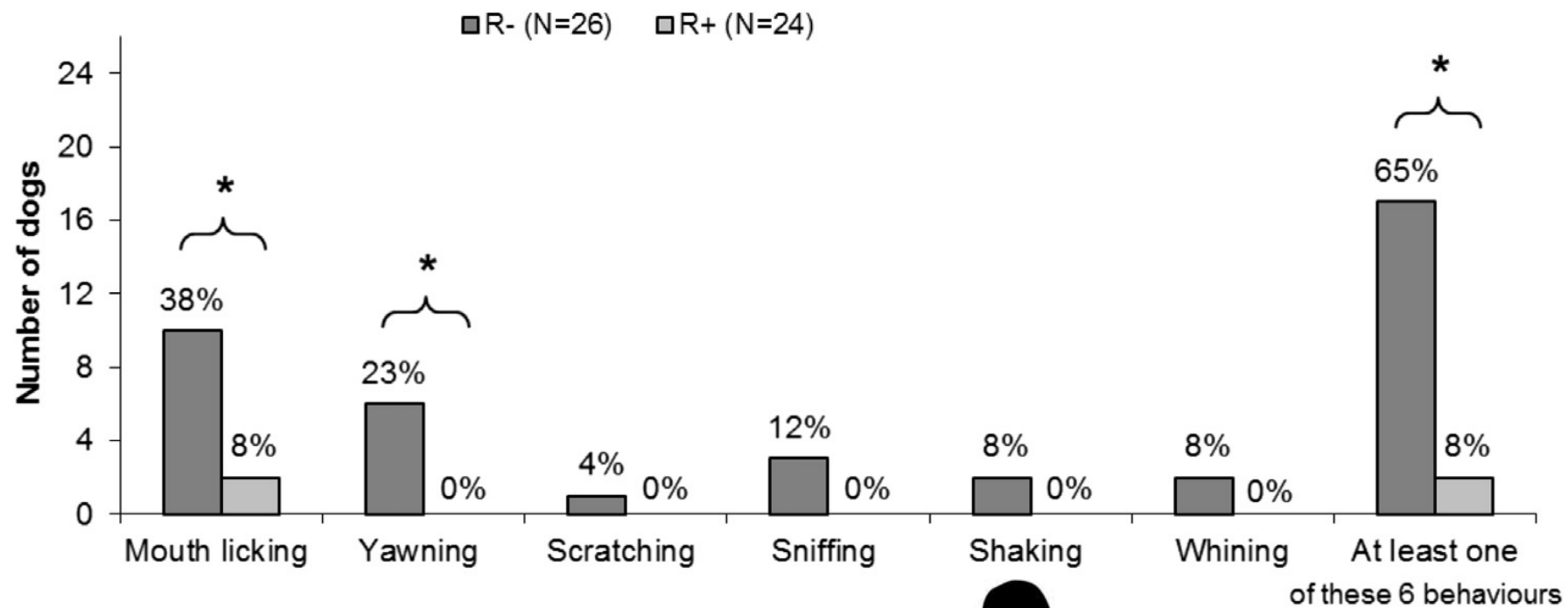- Punishment raises anxiety in the dog → impaired welfare → poor relationship

(Hiby et al. 2004)

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Fear/Anxiety primes us toward avoidance
(instead of any desirable behavior)!

→ Limited cognition, creativity and learning

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Welfare challenge: Training methods

(Deldalle & Gaunet, 2014)

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Lip (Mouth) licking

- More often in response to angry expression (Human > Dog)

- No such effect for only auditory stimulation

(Albuquerque et al. 2018)

- Differences in behavior and cardiovascular responses while petting/holding head, muzzle or paw (-)
  versus petting neck, chest, or tailbase (+)   (Kuhne et al., 2014)

- Less accpetance toward being touched by strangers: increased withdrawal, defensive gestures and displacement

                                                                        (Kuhne et al., 2012)

Therapy dog wellness strategies

- Ample opportunity to rest and sleep

- Physical exercise (mild)

- Quiet play, cognitive activity (sniffing)

- Chewing

- Positive social relationships

- Daily routines

- Gentle massage (e.g. TTouch)

Therapy dog wellness strategies

- Hafen of safetly
  → let dog explore unfamiliar environments
  → familiar cues in novel environments (transportbox, preferred blanket), camouflage

- Familiar routines
  → games, tricks, toys, treats, procedures → security, success

- Arrange activities and people
  if approached from only one direction → less feeling of being crowded

- Always mind the proximity to recipient/s
  → If needed, provide more distance

(Bielenberg, 2004; modified)

- Be gentle to your dog and yourself

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Literature

Glenk, 2017
Current Perspectives on Therapy Dog Welfare in Animal-Assisted Interventions
http://www.mdpi.com/2076-2615/7/2/7/htm
doi:10.3390/ani7020007

Glenk & Kothgassner 2017
"Life Out of Balance: Stress-Related Disorders in Animals and Humans"
http://link.springer.com/chapter/10.1007/978-3-319-47007-8_7
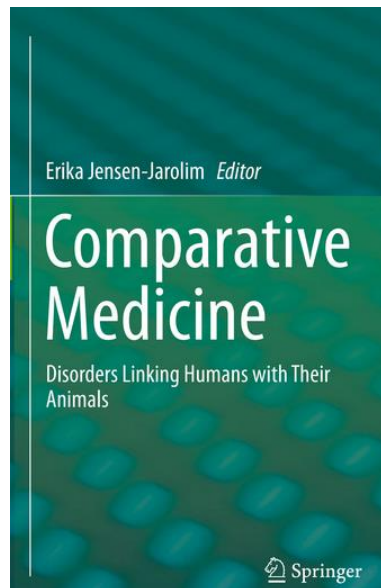
Glenk *in press*
"A dog's perspective on animal assisted interventions"

In: Pets as Sentinels, Forecasters and Promoters of Human Health

Questions?

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www.hundesicherheitstraining.at