University of Basel

One Health as Framework for Animal Assisted Interventions

Dr. Karin Hediger, 10.06.21

COATI MUNDI, A RACCOONLIKE ANIMAL, CAVORTS ON WIRE ABOVE HEADS OF YOUNG PATIENTS AND TEACHERS IN ANN ARBOR. ON TABLE ARE CALF AND PIG

Animals Make a Hospital Happy

YOUNG PATIENTS PLAY WITH ANIMALS AND FORGET PAIN

The delighted young children above, watching wide-eyed, have completely forgotten for the time being how depressing it is to be in a hospital. To make sure that they will keep on forgetting, the University of Michigan's hospital at Ann Arbor runs a perpetual animal show which is enjoyed by the 3,000 children who pass annually through its wards.

As hospital patients, children are a special problem. Their unreasoning fear of hospital routine, added to the misery of pain, often paralyzes their will to recover. Many hospitals rely on games and music to dispel the gloom. But, for hurrying a child out of the sickbed, the Ann Arbor hospital has found that nothing can match a youngster's natural fascination with animals.

University Hospital's menagerie has at various times included rabbits, ducks, a pair of coati mundis, an alligator, an ostrich and a deodorized skunk. Ever since the program started over 30 years ago, sponsored by a Kiwanis donation, the young patients have been getting such a beneficial kick out of their pets that the hospital staff now refers to the animals as "the therapeutic faculty."

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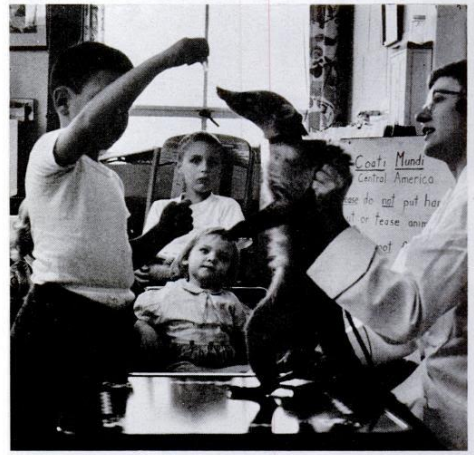

TEMPTING A COATI, Marc Tannenbaum offers animal drop of perfume. Coati mundi has curious way of taking perfume on paw, rubbing it on tail.

DOLLED-UP RABBIT, with ears poked through doll's dress, tours sun deck in baby buggy pushed by Linda Fox. Pat Cebelak follows with beagle pup.

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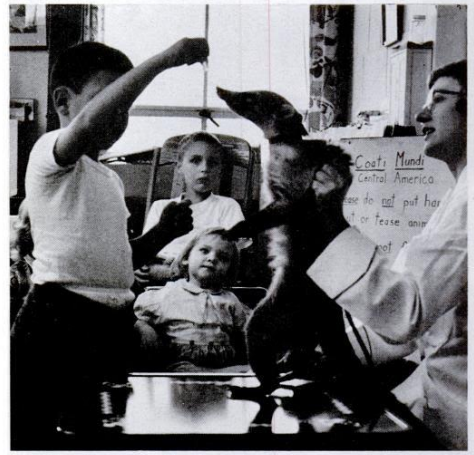

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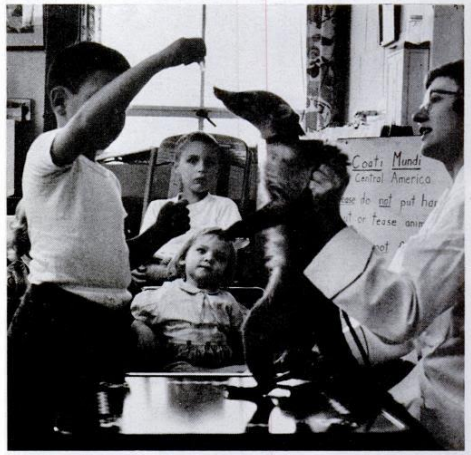

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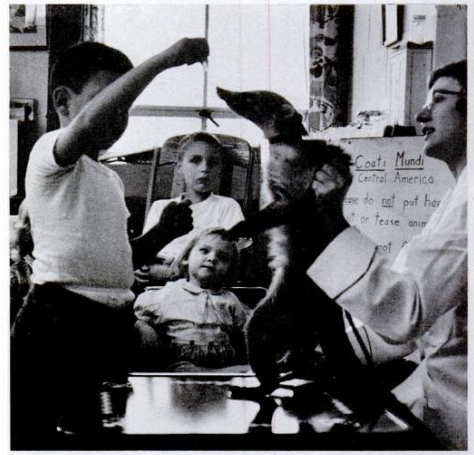

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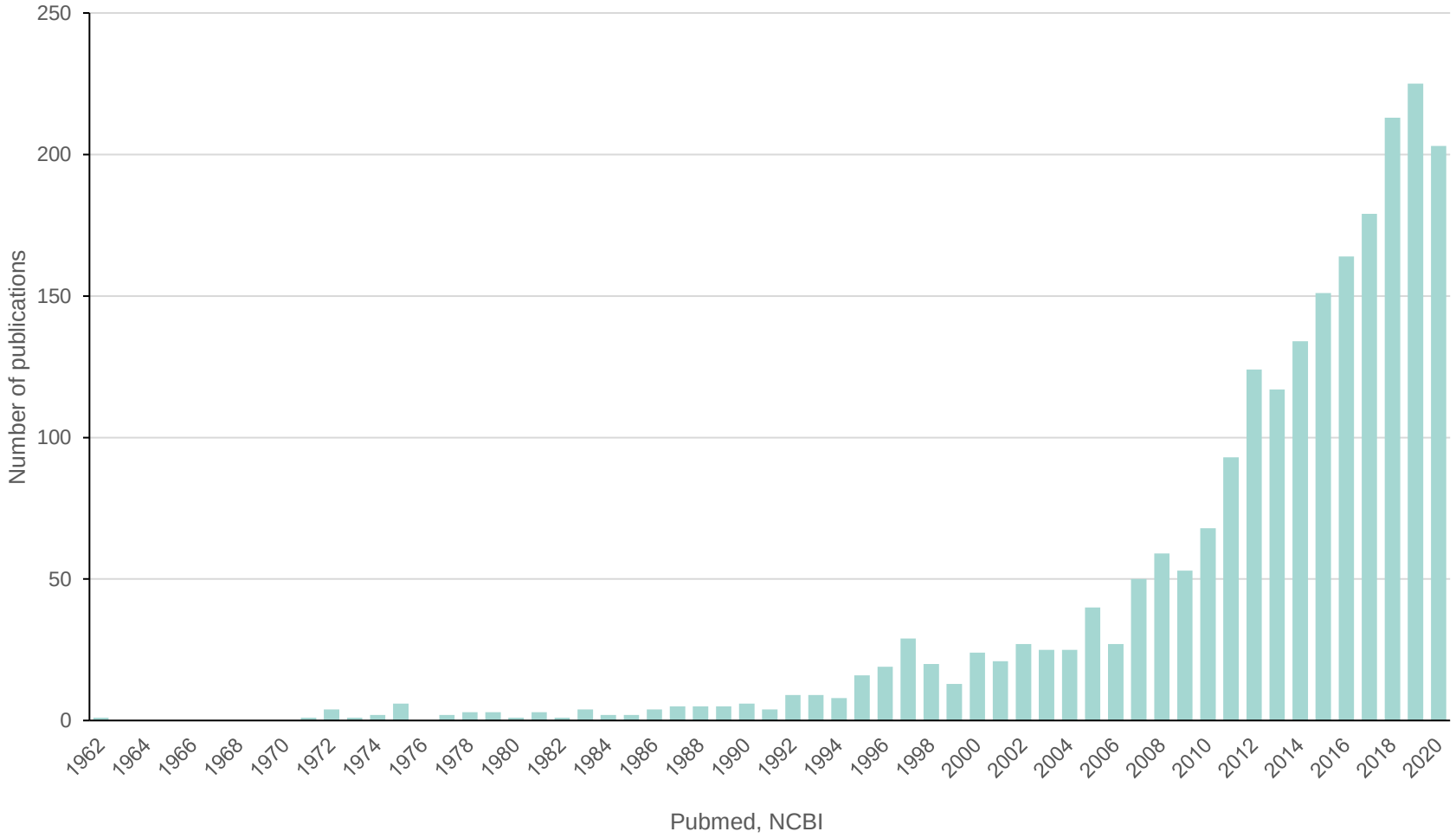
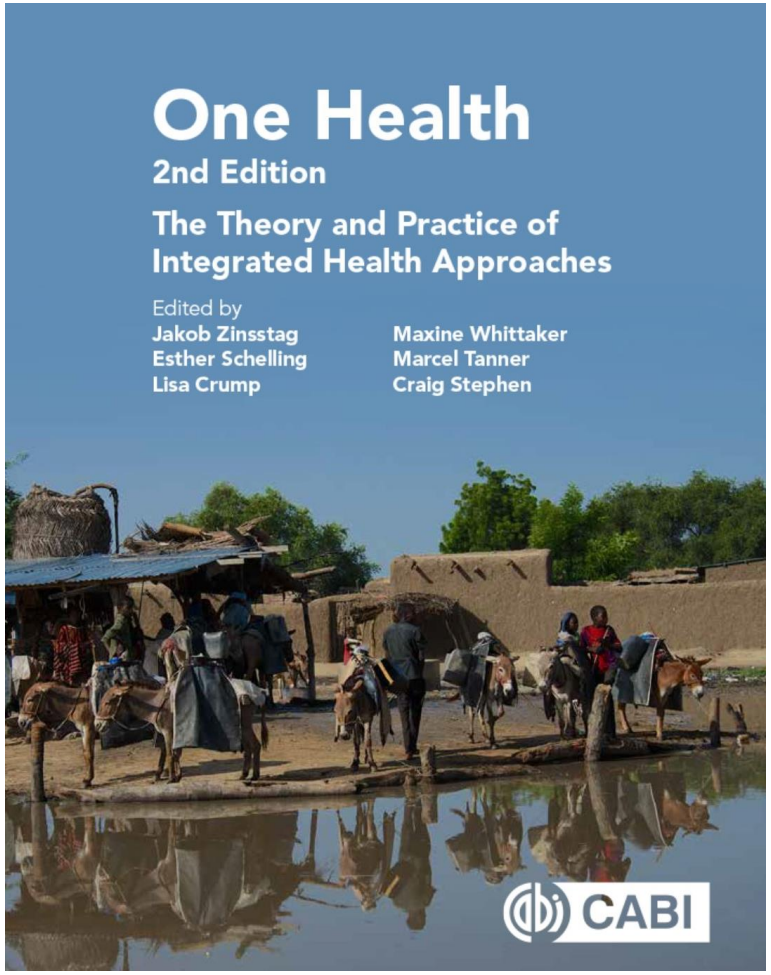
Publications on Animal-Assisted Therapy



One Health



Added value of closer cooperation of human and animal health in terms of

- better health of humans and animals
- financial savings
- better environmental services

From a “One Health” ethical point of view animals should not suffer for the benefit of better human health (Zinsstag et al., 2020).

Swiss TPH
Swiss Tropical and Public Health Institute

Current research - horses

No difference in stress-related behaviour in horses when ridden by recreational riders or riders with physical or psychological handicaps or special education children.
Higher number of stress-related behaviours when ridden by at-risk children (Kaiser et al., 2006).

Stress-related behaviour not higher when ridden by patients with cerebral palsy compared to traditional lessons (Kaiser et al., 2013).

Lower cortisol in horses ridden by disabled children than by healthy children (Fazio et al., 2013).

Current research - horses

No significant differences in behaviour and cortisol between traditional and therapeutic riding conditions (McKinney et al., 2015).

Higher cortisol but less stress-related behaviour in horses ridden by veterans than by experienced riders (Johnson et al., 2017).

Behavioural and physiological responses of horses to humans depend more on human experience with horses than whether the human is diagnosed with a mental disorder (Merkies et al., 2018).

Current research - horses

Stress levels in horses (cortisol and HRV) similar during equine assisted therapy (EAT) with veterans as during control.
Levels of well-being not increased measured via plasma oxytocin concentrations after EAT sessions (Malinowski et al., 2018).

EAT is neither a negative nor a positive event according to behaviour and heart rate variability. Patients with both physical and psychological problems were more challenging for horses than patients with only psychological problems (Mendonça et al., 2019).

Current research - horses

Synchronization patterns in heart rate between horses, patients and therapists depend on the relationship quality and intensity (Naber et al., 2018).

Behavioural flexibility is context-dependent and varies across sessions. Human attachment style influences horses physiological and behavioural response.
Less affiliative behaviours throughout the duration of the program (Arazzola & Merkies, 2020).

Different horses react in different ways to the same setting of hippotherapy.
Cortisol reagibility depends on personality of the horse (Pyle, 2006).

Current research - dogs

More stress-related behaviour in dogs working with younger kids (under 12) (Marinelli et al, 2009).

Younger dogs show more stress-related behaviour than older.
Experienced dogs show less stress-related behaviour than less experienced dogs (King et al, 2011).

Dogs off-leash show less cortisol levels (Glenk et al, 2013).

If dogs are trained and work is restricted, no elevated physiological or behavioural stress level (Glenk et al, 2014; Corsetti et al., 2019).

AAI might help to improve the welfare of shelter dogs housed in kennels. Transportation however, might be a stressor (d'Angelo et al. 2021).

Current research - guinea pigs

Study on guinea pigs in animal-assisted therapy

- Interaction with patient in table cage → retreat
- Interaction with patient on patient's lap → no retreat
- Interaction with patient in table cage alone → no conspecifics
- Table cage without human interaction → control

Gut et al., 2018

Wirth et al., 2020

Current research - guinea pigs

Control vs therapy with retreat

- Frequency hiding ↑ Duration hiding →
- Startling ↑
- Comfort behaviour →
- Locomotion ↑
- Explorative behaviour ↑

→ Small amount of stress, mostly enrichment

Current research - guinea pigs

Control vs therapy without retreat

- Freezing ↑↑↑
- Comfort behaviour ↓
- Startling ↓
- Vocalisation ↑

→ Higher stress

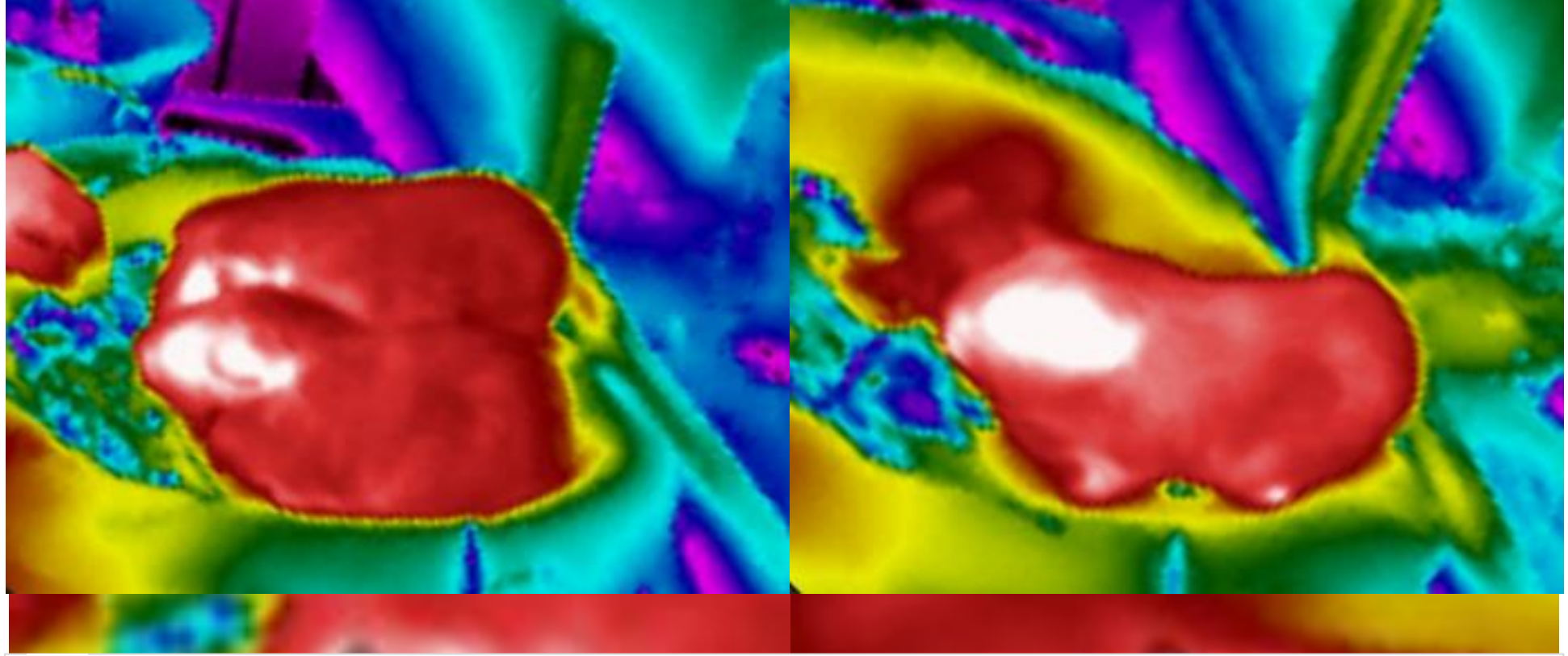
Current research - guinea pigs

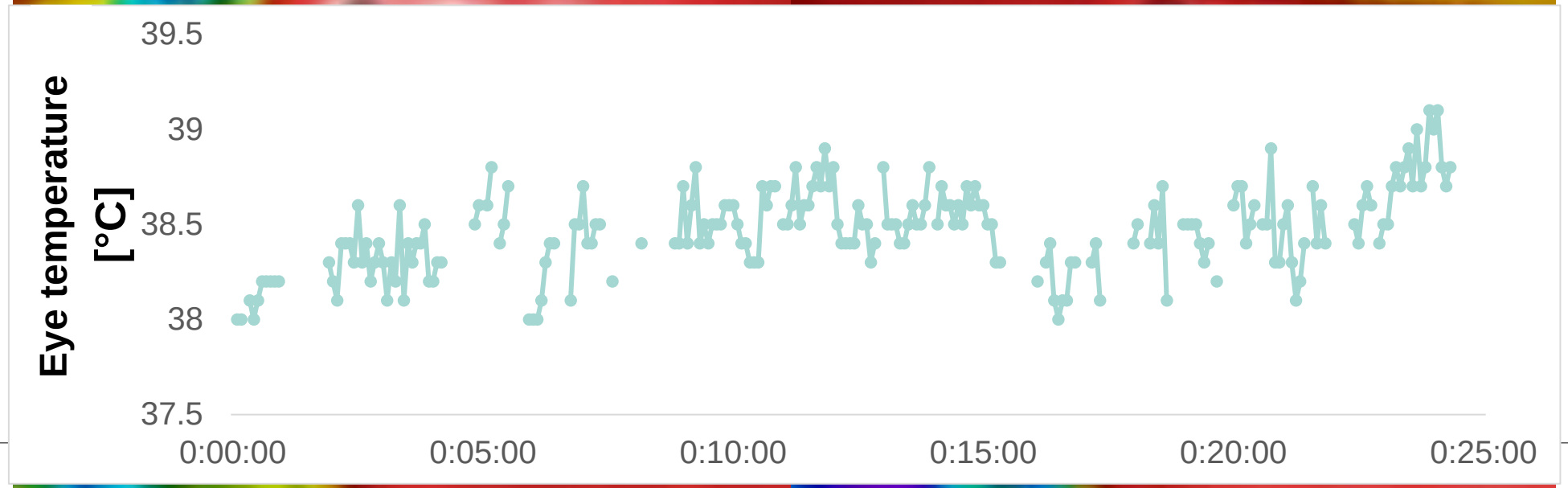
Control vs therapy without retreat

- Freezing ↑↑↑
- Comfort behaviour ↓
- Startling ↓
- Vocalisation ↑

→ Higher stress

→ Possibility of retreat is crucial

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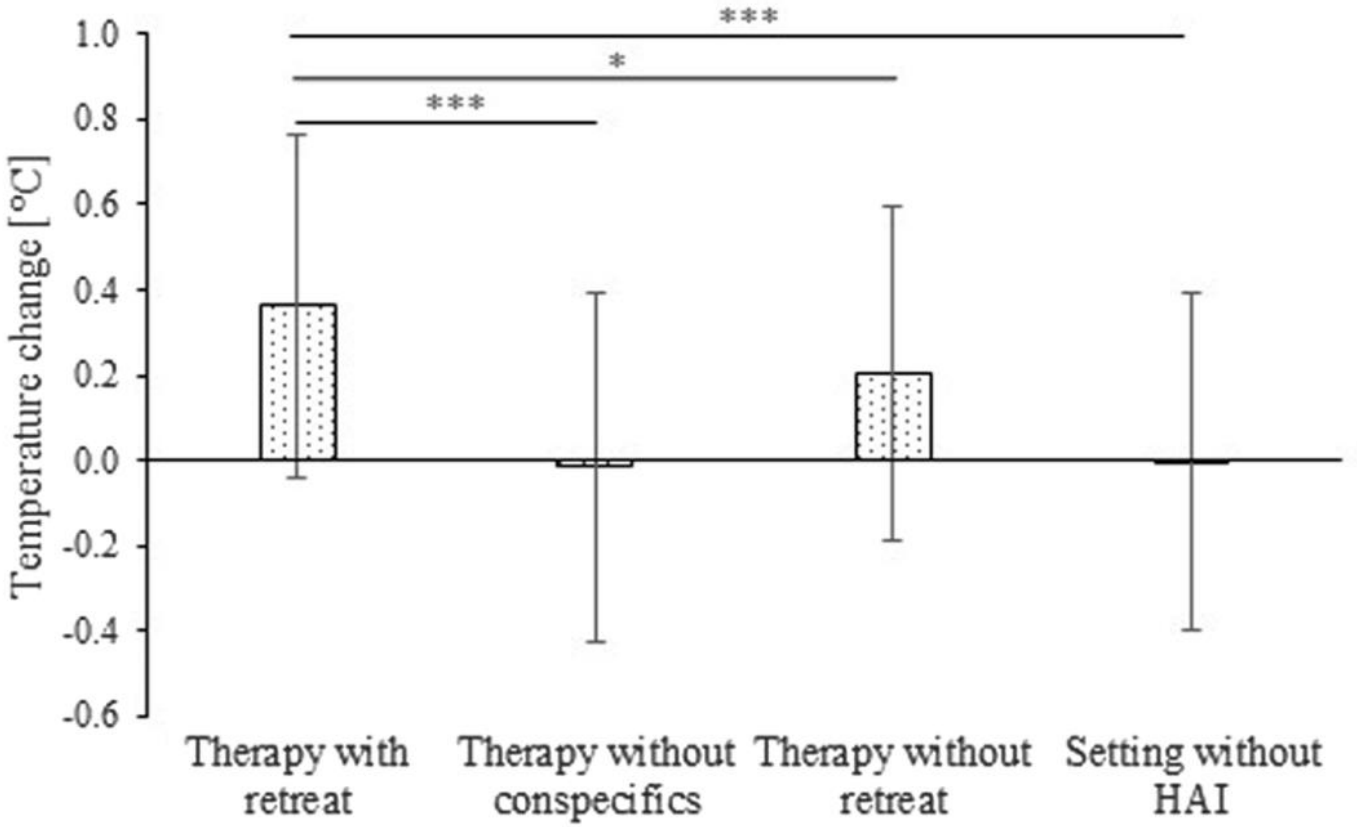
Current research - guinea pigs



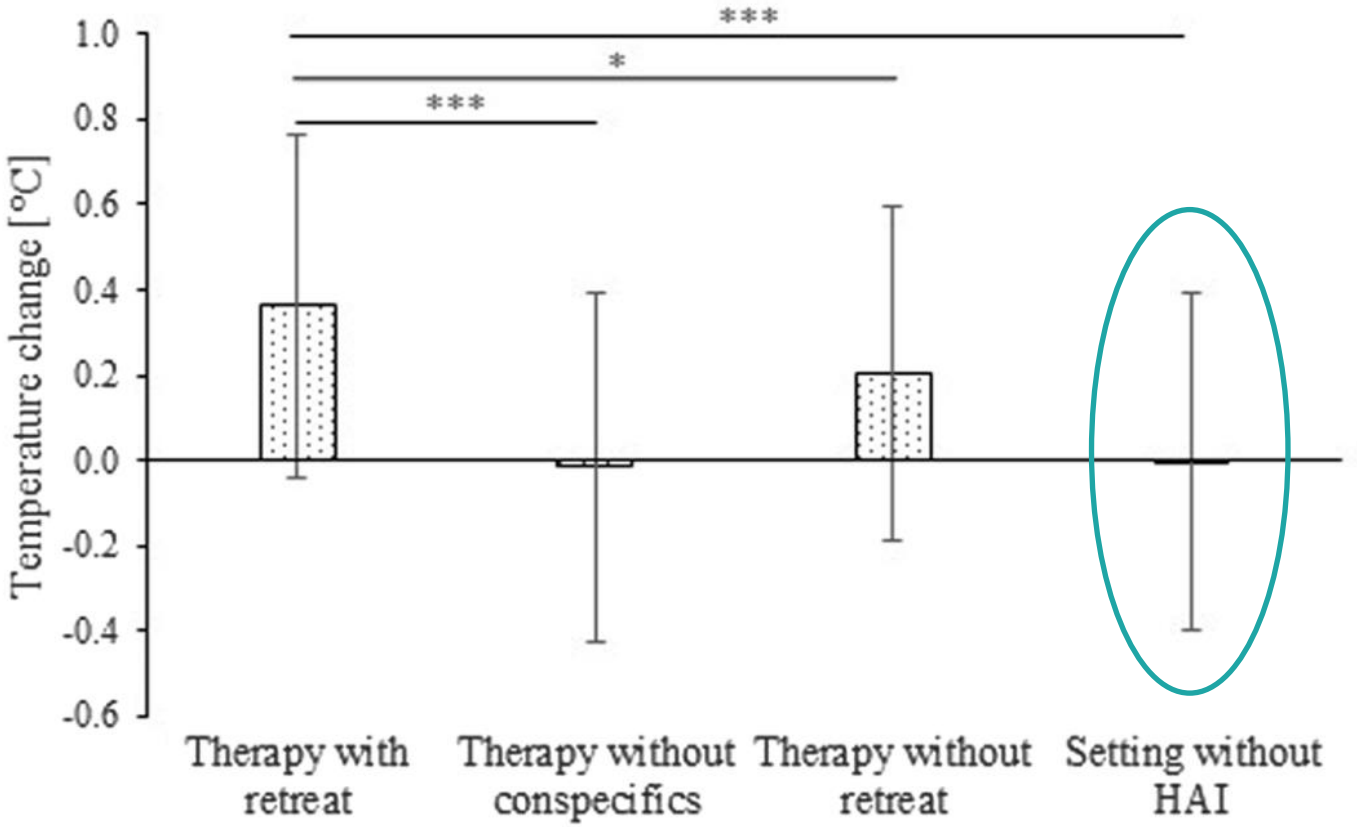
→ Difference between behaviour and physiology

→ Negative or positive arousal?

→ Presence of conspecifics is important

Wirth et al., 2020

Current research - guinea pigs



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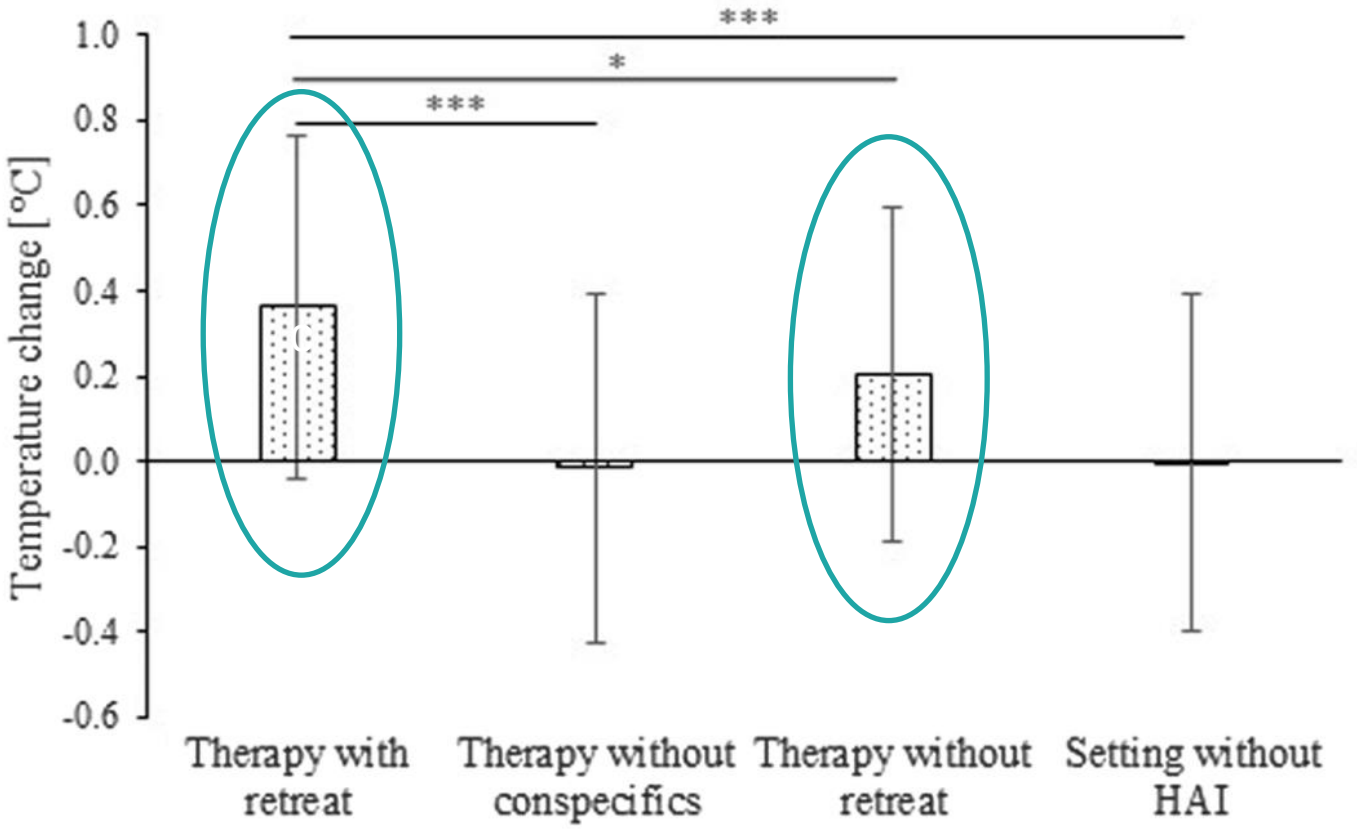

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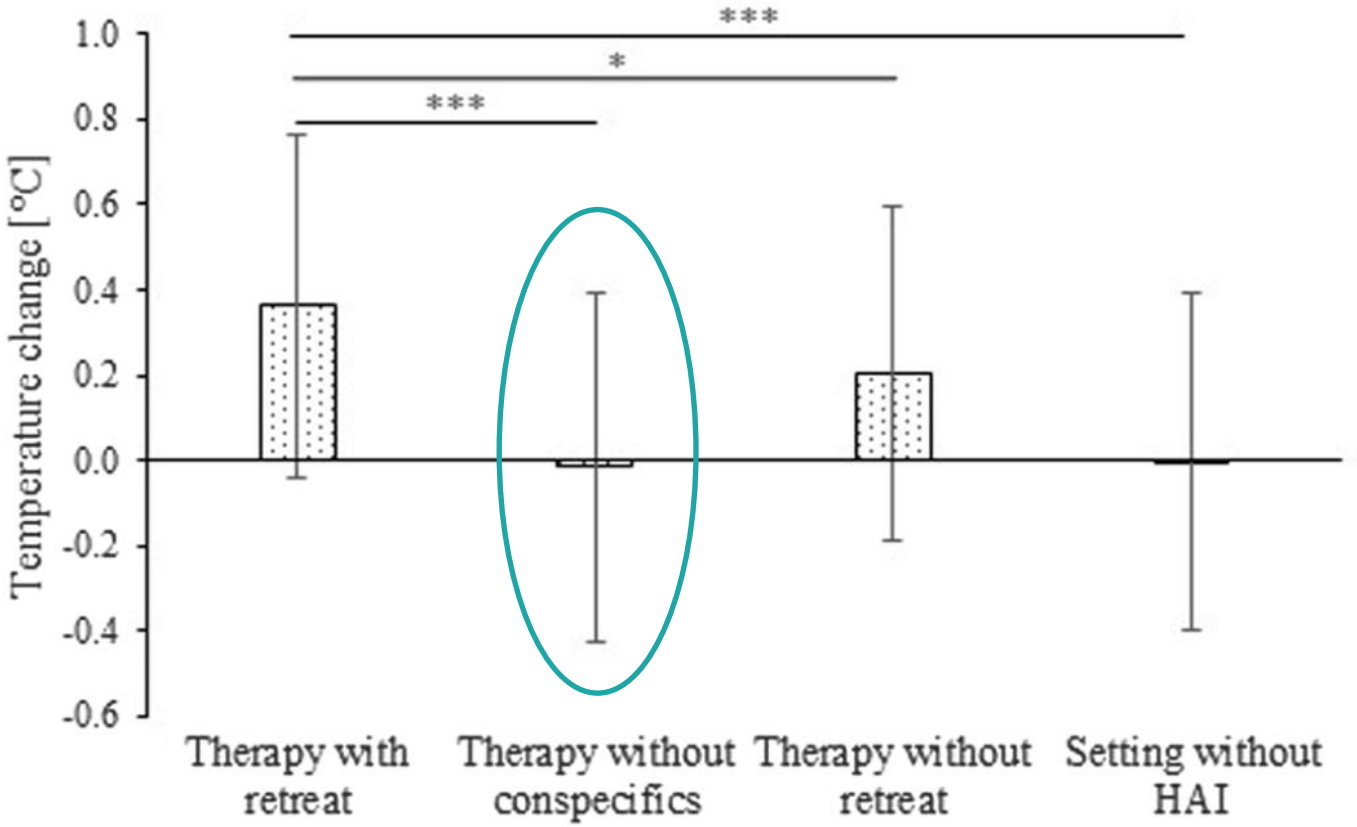

→ Difference between behaviour and physiology

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→ Presence of conspecifics is important

Wirth et al., 2020

Conclusion

Most studies on dogs (Glenk et al., 2017) and horses (De Santis et al., 2017; Scopa et al., 2019).

Current status:

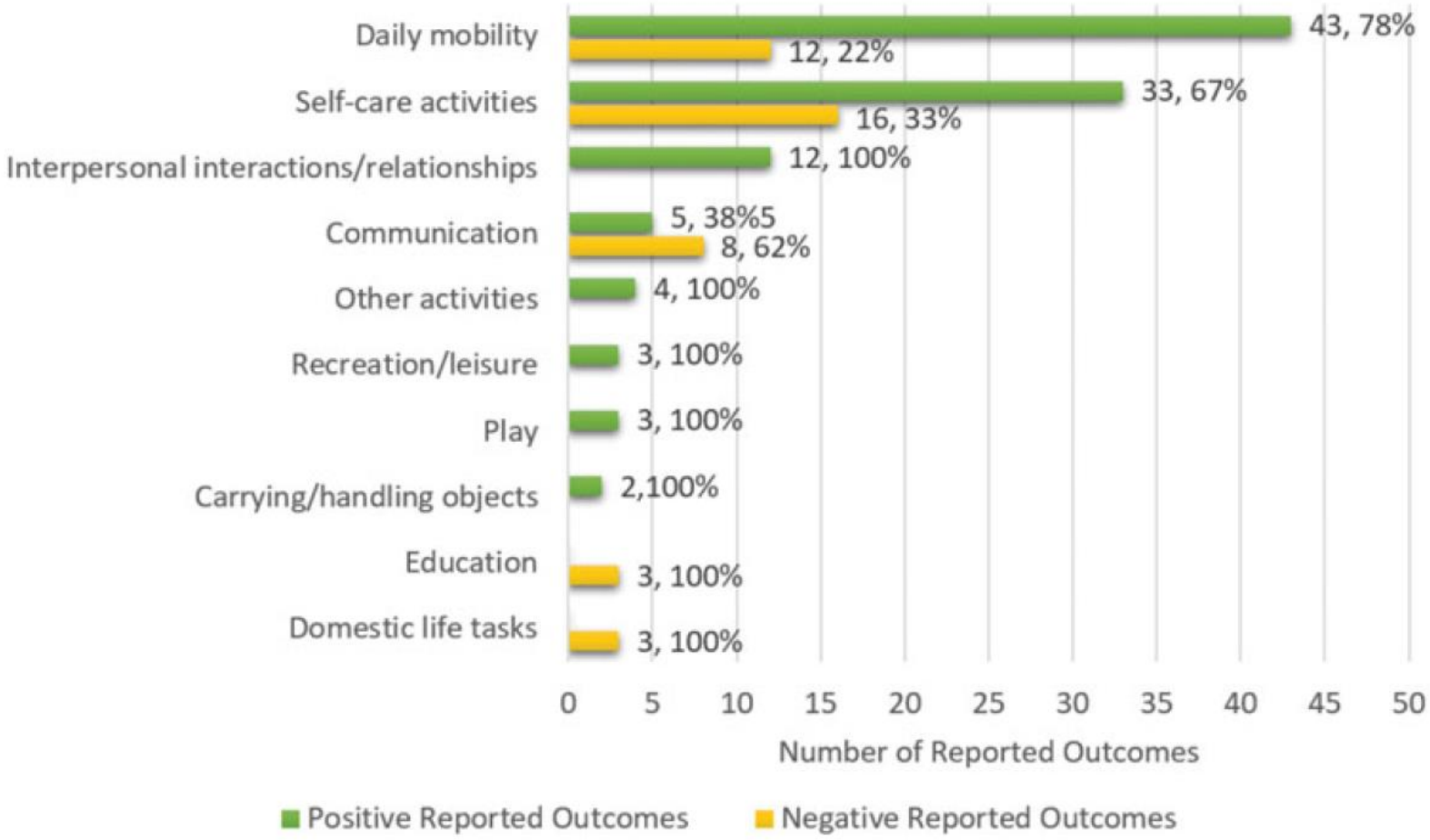
- No monogenous picture, several influencing factors
- If situation is suitable, possibly no additional stress
- Attunement between humans and animals

Important factors:

- Secure base / friend present
- Control – retreat – voluntary interaction
- Enabling self-efficacy

Mapping-Review Hippotherapy

78 studies included (Wood & Fields, 2019)



Conclusion

More reserach with a One-Health framework is needed!

International Journal of
Environmental Research and Public Health

MDPI

Concept Paper

A One Health Research Framework for Animal-Assisted Interventions

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Abstract: Background: The integration of animals into healthcare, referred to as animal-assisted intervention, is a rapidly growing research field and was previously related to One Health. However,

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Thank you
for your attention