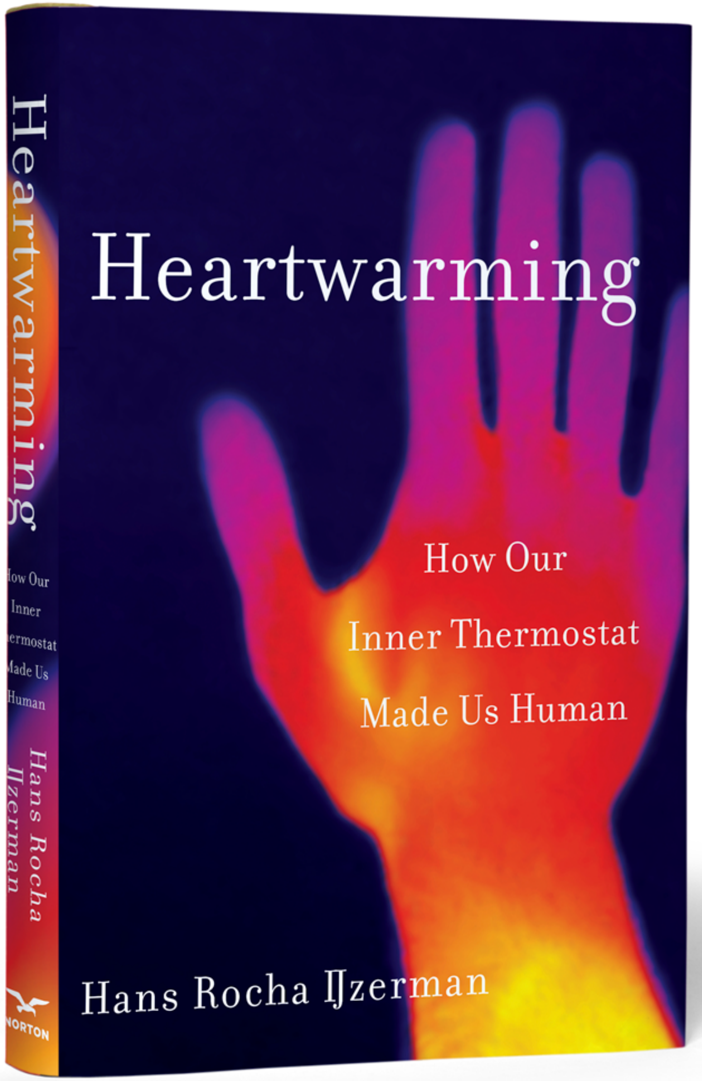
Gehechtheid
en
Sociale thermoregulatie

4e Hechtingscongres

Belichaamde gehechtheid | Ritme en regulatie

Gehechtheid
en
Sociale thermoregulatie

Hans (Rocha) IJzerman
Université Grenoble Alpes
Institut Universitaire de France


Heartwarming
How Our
Inner Thermostat
Made Us Human
Hans Rocha IJzerman
NORTON

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Essay

Why Most Published Research Findings Are False

John P. A. Ioannidis

Journal of Personality and Social Psychology
2011, Vol. 100, No. 3, 407–425

0022-3514/11/$12.00 DOI: 10.1037/a0021524

Feeling the Future: Experimental Evidence for Anomalous Retroactive Influences on Cognition and Affect

Daryl J. Bem
Cornell University

False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant

Joseph P. Simmons[1], Leif D. Nelson[2], and Uri Simonsohn[1]
[1]The Wharton School, University of Pennsylvania, and [2]Haas School of Business, University of California, Berkeley

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Essay

Why Most Publis Are False

John P. A. Ioannidis

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Using social and behavioural science to support COVID-19 pandemic response

Jay J. Van Bavel[1] ✉, Katherine Baicker[2], Paulo S. Boggio[3], Valerio Capraro[4], Aleksandra Cichocka[5,6], Mina Cikara[7], Molly J. Crockett[8], Alia J. Crum[9], Karen M. Douglas[5], James N. Druckman[10], John Drury[11], Oeindrila Dube[2], Naomi Ellemers[12], Eli J. Finkel[13], James H. Fowler[14], Michele Gelfand[15], Shihui Han[16], S. Alexander Haslam[17], Jolanda Jetten[18], Shinobu Kitayama[19], Dean Mobbs[20], Lucy E. Napper[21], Dominic J. Packer[22], Gordon Pennycook[23], Ellen Peters[24], Richard E. Petty[25], David G. Rand[26], Stephen D. Reicher[27], Simone Schnall[28,29], Azim Shariff[30], Linda J. Skitka[31], Sandra Susan Smith[32], Cass R. Sunstein[33], Nassim Tabri[34], Joshua A. Tucker[35], Sander van der Linden[28], Paul van Lange[36], Kim A. Weeden[37], Michael J. A. Wohl[34], Jamil Zaki[9], Sean R. Zion[9] and Robb Willer[38] ✉

The COVID-19 pandemic represents a massive global health crisis. Because the crisis requires large-scale behaviour change and places significant psychological burdens on individuals, insights from the social and behavioural sciences can be used to help align human behaviour with the recommendations of epidemiologists and public health experts. Here we discuss evidence from a selection of research topics relevant to pandemics, including work on navigating threats, social and cultural influences on behaviour, science communication, moral decision-making, leadership, and stress and coping. In each section, we note the nature and quality of prior research, including uncertainty and unsettled issues. We identify several insights for effective response to the COVID-19 pandemic and highlight important gaps researchers should move quickly to fill in the coming weeks and months.

ology: Undisclosed ollection and Analysis Allows Presenting Anything as Significant

Joseph P. Simmons[1], Leif D. Nelson[2], and Uri Simonsohn[1]
[1]The Wharton School, University of Pennsylvania, and [2]Haas School of Business, University of California, Berkeley

NASA

TRL 9	Actual system "flight proven" through successful mission operations
TRL 8	Actual system completed and "flight qualified" through test and demonstration (ground or space)
TRL 7	System prototype demonstration in a space environment
TRL 6	System/subsystem model or prototype demonstration in a relevant environment (ground or space)
TRL 5	Component and/or breadboard validation in relevant environment
TRL 4	Component and/or breadboard validation in laboratory environment
TRL 3	Analytical and experimental critical function and/or characteristic proof-of-concept
TRL 2	Technology concept and/or application formulated
TRL 1	Basic principles observed and reported

IJzerman et al., 2020 *Nature Human Behaviour*

NASA		Social and Behavioural Science	
TRL 9	Actual system "flight proven" through successful mission operations	ERL 9	Use the solution to successfully address a crisis situation; feedback evaluation to expand evidence
TRL 8	Actual system completed and "flight qualified" through test and demonstration (ground or space)	ERL 8	Conduct large-scale testing of the solution in settings as close to the target settings as possible
TRL 7	System prototype demonstration in a space environment	ERL 7	Test the solution in a variety of settings and stimuli in a lab environment
TRL 6	System/subsystem model or prototype demonstration in a relevant environment (ground or space)	ERL 6	Establish causal inference and potential side effects in a lab environment, testing replicability via cross-validation
TRL 5	Component and/or breadboard validation in relevant environment	ERL 5	Compare candidate solutions in observational settings (relying on data-driven techniques), generating formal predictions for positive expected effects and (unintended) side effects
TRL 4	Component and/or breadboard validation in laboratory environment	ERL 4	Select measures; evaluate validity and measurement equivalence
TRL 3	Analytical and experimental critical function and/or characteristic proof-of-concept	ERL 3	Conduct systematic reviews to select potential evidence of candidate solutions
TRL 2	Technology concept and/or application formulated	ERL 2	Consult people in the target settings to assess the problem's/problems' applicability
TRL 1	Basic principles observed and reported	ERL 1	Define the problem(s) in collaboration with stakeholders

IJzerman et al., 2020 *Nature Human Behaviour*

NASA		Social and Behavioural Science	
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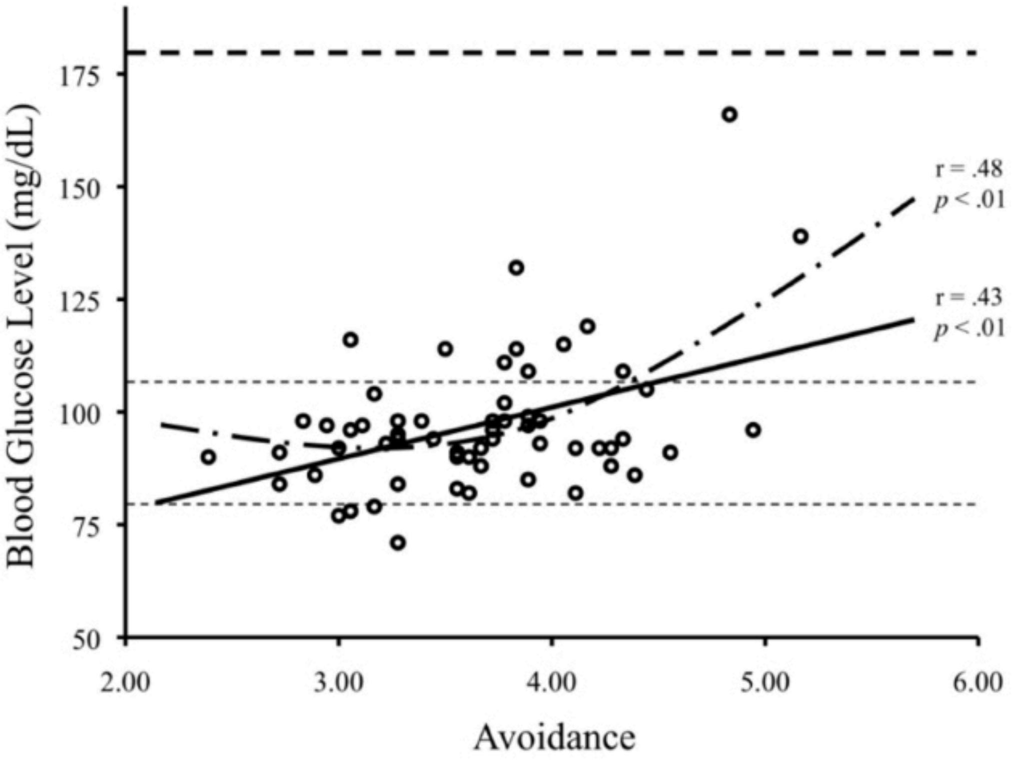
IJzerman et al., 2020 *Nature Human Behaviour*

How animals deal with temperature (Chapter 3)

Recent en huidig thermoregulatie onderzoek van ons lab

How animals deal with temperature (Chapter 3)

Recent en huidig thermoregulatie onderzoek van ons lab



Ein-Dor et al., 2015, *Frontiers in Psychology*

Temperatuurregulatie definiëren…

Temperatuurregulatie definiëren…

Endothermie versus ectothermie

Temperatuurregulatie definiëren…

Endothermie versus ectothermie

Poikilothermen

Temperatuurregulatie definiëren…

Endothermie versus ectothermie

Poikilothermen versus homeothermen

Temperatuurregulatie definiëren…

Endothermie versus ectothermie

Poikilothermen versus homeothermen en heterothermen

Temperatuurregulatie definiëren…

Endothermie versus ectothermie

Poikilothermen versus homeothermen en heterothermen

Doel van temperatuurregulatie voor homeothermische endothermen

Doel van temperatuurregulatie voor homeothermische endothermen

Interne temperatuur stabiel houden

Doel van temperatuurregulatie voor homeothermische endothermen

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Manieren om kosten te besparen bestaan

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Doel van temperatuurregulatie voor homeothermische endothermen

Interne temperatuur stabiel houden

Manieren om kosten te besparen bestaan

”Huddling” biedt flexibiliteit en bespaart energie

Modeling Huddling Penguins

Aaron Waters, François Blanchette, Arnold D. Kim

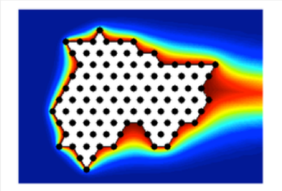
Published: November 16, 2012 • https://doi.org/10.1371/journal.pone.0050277

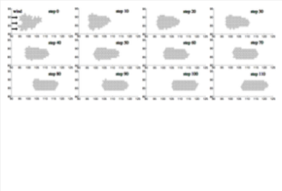
Article | **Authors** | **Metrics** | **Comments** | **Media Coverage**

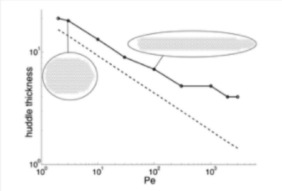
Abstract

We present a systematic and quantitative model of huddling penguins. In this mathematical model, each individual penguin in the huddle seeks only to reduce its own heat loss. Consequently, penguins on the boundary of the huddle that are most exposed to the wind move downwind to more sheltered locations along the boundary. In contrast, penguins in the interior of the huddle neither have the space to move nor experience a significant heat loss, and they therefore remain stationary. Through these individual movements, the entire huddle experiences a robust cumulative effect that we identify, describe, and quantify. This mathematical model requires a calculation of the wind flowing around the huddle and of the resulting temperature distribution. Both of these must be recomputed each time an individual penguin moves since the huddle shape changes. Using our simulation results, we find that the key parameters affecting the huddle dynamics are the number of penguins in the huddle, the wind strength, and the amount of uncertainty in the movement of the penguins. Moreover, we find that the lone assumption of individual penguins minimizing their own heat loss results in all penguins having approximately equal access to the warmth of the huddle.

Figures







Waters et al., 2006 *PLoS One*

One for all and all for one: the energetic benefits of huddling in endotherms.

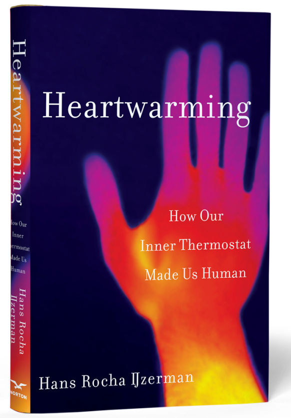
Caroline Gilbert [1, 2], Dominic Mccafferty [3], Yvon Le Maho [1], Jean-Marc Martrette [1, 2], Sylvain Giroud [1], Stéphane Blanc [1], André Ancel [1]

Details

1 DEPE-IPHC - Département Ecologie, Physiologie et Ethologie

2 UHP - Université Henri Poincaré - Nancy 1

3 DACE

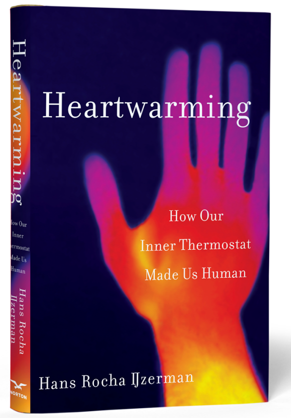


Abstract : Huddling can be defined as "an active and close aggregation of animals". It is a cooperative group behaviour, permitting individuals involved in social thermoregulation to minimize heat loss and thereby lower their energy expenditure, and possibly allowing them to reallocate the saved energy to other functions such as growth or reproduction. Huddling is especially important in the case of animals faced with high heat loss due to a high surface-to-volume ratio, poor insulation, or living in cold environments. Although numerous experimental studies have focused on the huddling behaviour of a wide range of species, to our knowledge, this is the first attempt to review the various implications of this widely used behavioural strategy. Huddling allows individuals to maximise energy savings by (1) decreasing their cold-exposed body surface area, (2) reducing their heat loss through warming of ambient temperatures surrounding the group, and (3) eventually lowering their body temperature through physiological processes. Huddling provides substantial energy savings and is estimated to reduce energy expenditure by between 6 and 53%. Broad variations in the energetic benefits of huddling depend on the number of individuals and species involved in huddles, the ambient temperatures to which individuals are exposed and the density of the aggregations. It has been shown that huddling individuals have increased survival, a lower food intake, a decreased body mass loss, increased growth rate, reduced water loss, and/or a more constant body temperature together with a significant reduction in metabolic rate. Though huddling has been studied widely, this review reveals the intricacies of this adaptive behaviour.

Gilbert et al., 2010 *Biological Reviews*

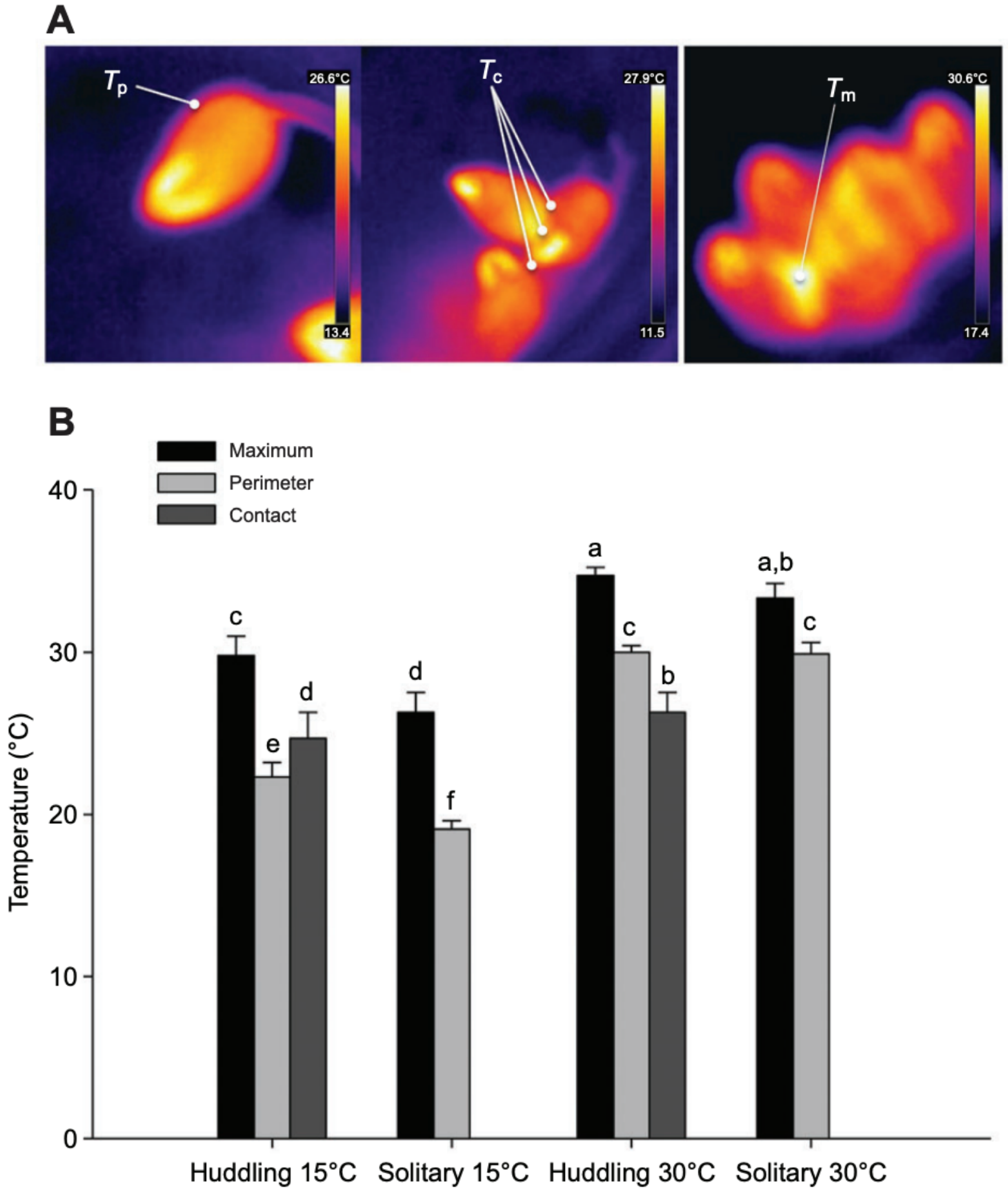
Metabolic (energy) savings from huddling (in %)[10]

African four-striped grass mouse *Rhabdomys pumilio*	16
Bank vole *Clethrionomys glareolus*	8–35
Emperor penguin *Aptenodytes forsteri*	16
Antelope ground squirrel *Ammospermophilus leucurus*	40
Grey partridge *Perdix perdix*	6–24
Muskrat *Ondrata zibethicus*	11–14
Harvest mouse *Reithrodontomys megalotis*	28
Green woodhoopoe *Phoeniculus purpureus*	30
White-backed mousebird *Colius colius*	50
Townsend's vole *Microtus townsendii*	16
European common vole *Microtus arvalis*	36
Striped field mouse *Apodemus agrarius*	12–29
Tundra vole *Microtus oeconomus*	10–15
Common bushtit *Psaltriparus minimus*	21
Gray mouse lemur *Microcebus murinus*	20–40
Australian hopping mouse *Notomys alexis*	18
Naked mole-rat *Heterocephalus glaber*	22
Domestic rabbit *Oryctolagus cuniculus*	32–40
Common rat *Rattus norvegicus*	34
House mouse *Mus musculus*	14–22
Yellow-necked field mouse *Apodemus flavicollis*	13–44
Northern white-footed mouse *Peromyscus leucopus noveboracensis*	27–53
Lesser bulldog bat *Noctilio albiventris*	38–47
Red-billed woodhoopoe *Phoeniculus purpureus*	12–29
Speckled mousebird *Colius striatus*	11–31



Gilbert et al., 2010 *Biological Reviews*

Nuñez-Villega et al., 2014 *Journal of Experimental Biology*



Nuñez-Villega et al., 2014 *Journal of Experimental Biology*

Journal of Animal Ecology 2015, **84**, 871–878 doi: 10.1111/1365-2656.12329

Social integration confers thermal benefits in a gregarious primate

Richard McFarland[1,2]*, Andrea Fuller[1], Robyn S. Hetem[1], Duncan Mitchell[1,3], Shane K. Maloney[1,3], S. Peter Henzi[4,5] and Louise Barrett[1,4]

[1]Brain Function Research Group, School of Physiology, University of the Witwatersrand, Johannesburg, South Africa; [2]Department of Anthropology, University of Wisconsin–Madison, 1180 Observatory Drive, Madison, WI 53706, USA; [3]School of Anatomy, Physiology and Human Biology, University of Western Australia, Perth, WA, Australia; [4]Department of Psychology, University of Lethbridge, Lethbridge, AB, Canada; and [5]Applied Behavioural Ecology & Ecosystems Research Unit, University of South Africa, Pretoria, South Africa

Summary

1. Sociality has been shown to have adaptive value for gregarious species, with more socially integrated animals within groups experiencing higher reproductive success and longevity. The value of social integration is often suggested to derive from an improved ability to deal with social stress within a group; other potential stressors have received less attention.

2. We investigated the relationship between environmental temperature, an important non-social stressor, and social integration in wild female vervet monkeys (*Chlorocebus pygerythrus*), using implanted data loggers to obtain direct measures of core body temperature.

3. Heterothermy (as measured by 24-h amplitude of body temperature) increased, and 24-h minima of body temperature decreased, as the 24-h minimum ambient temperature decreased. As winter progressed, monkeys became increasingly heterothermic and displayed lower 24-h minima of body temperature.

4. Monkeys with a greater number of social partners displayed a smaller 24-h amplitude (that is, were more homoeothermic) and higher 24-h minima of body temperature (that is, became

McFarland et al., 2015, *Journal of Animal Ecology*

Animal behaviour

Benefits of female mimicry in snakes

R. Shine, B. Phillips, H. Waye, M. LeMaster & R. T. Mason

Nature **414**, 267(2001) | Cite this article

She-male garter snakes exploit the amorous attentions of other males to warm up.

Abstract

Males of several animal species mimic females either in appearance or in the chemical cues they release[1,2], and this mimicry has generally been interpreted in terms of alternative mating strategies –– for example, a male that mimics a female may obtain stolen inseminations or avoid aggression from larger rivals[3]. Our studies of snakes suggest a different explanation, which relies on natural selection rather than sexual selection. Male garter snakes that produce female-like pheromones (she-males) may benefit simply because large 'mating balls' of amorous males form around them, transferring heat to the she-male after it emerges from hibernation and reducing its exposure to predators.

Shine et al., 2001 *Nature*

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May 5, 2021

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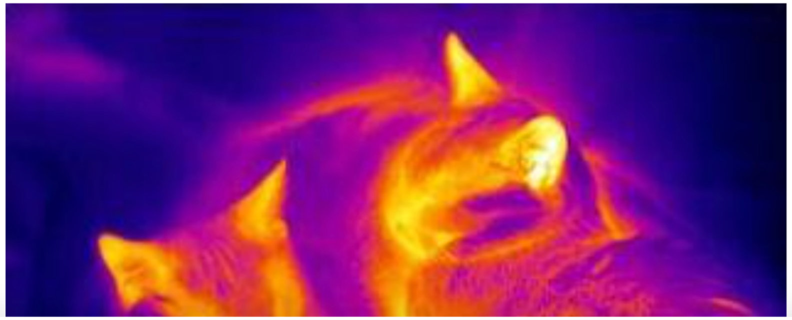
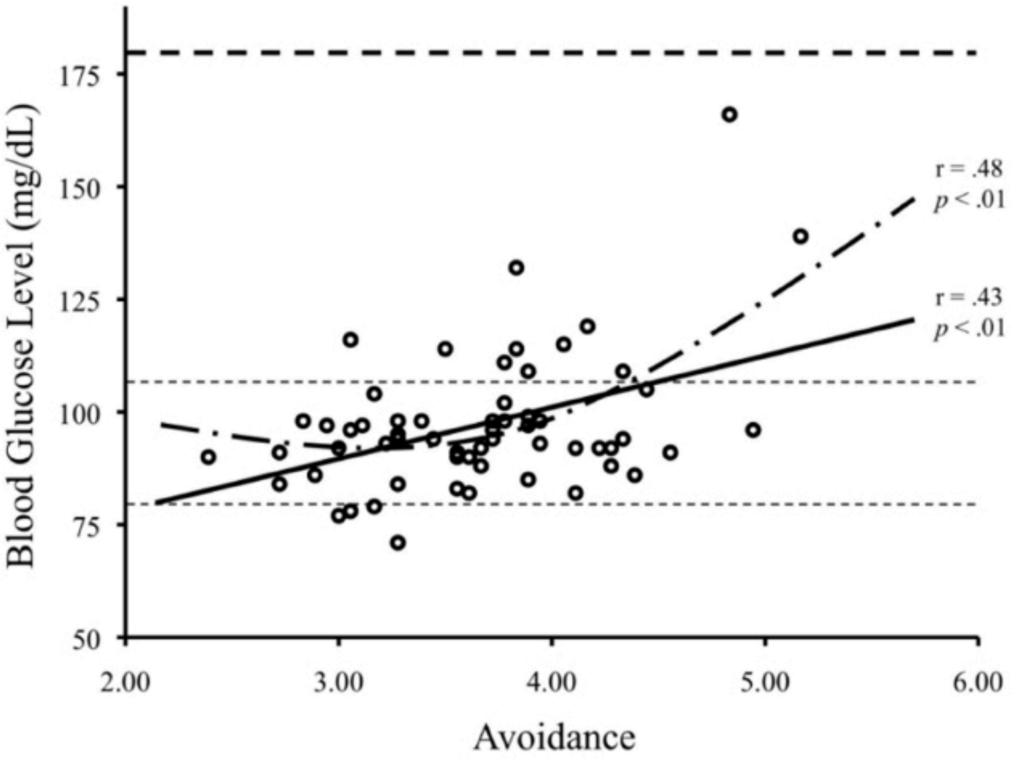
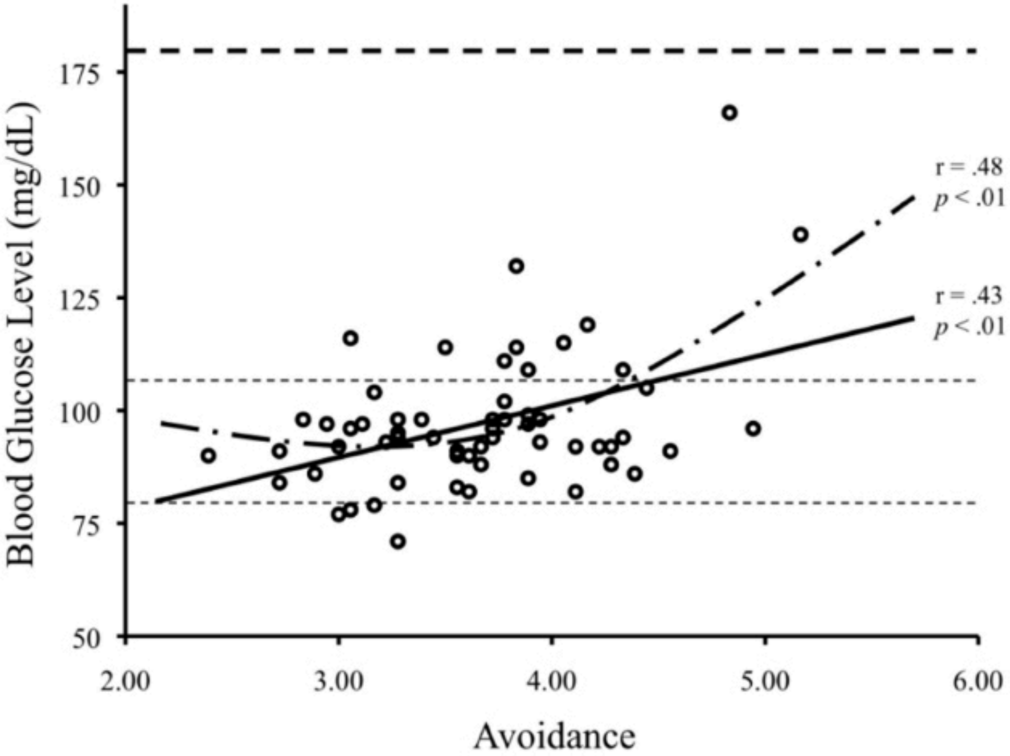


How animals deal with temperature (Chapter 3)

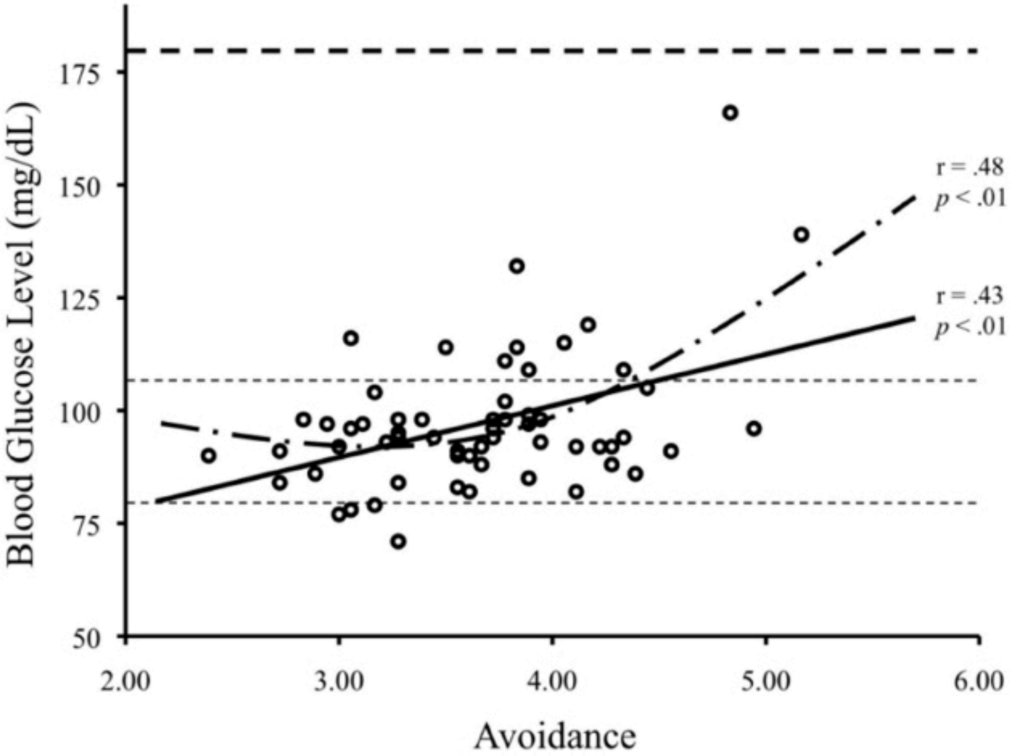
Recent en huidig thermoregulatie onderzoek van ons lab



Ein-Dor et al., 2015, *Frontiers in Psychology*



Bystrova et al., 2003, *Acta Paediatrica*



Van Acker et al., 2016, *Journal of Experimental Social Psychology*

Recent en huidig thermoregulatie onderzoek van ons lab

Gehechtheid en temperatuurregulatie

Temperatuurpersoonlijkheidsproject

Zien van partner gezichten en perifere temperatuur

Recent en huidig thermoregulatie onderzoek van ons lab

- Gehechtheid en temperatuurregulatie
- Temperatuurpersoonlijkheidsproject
- Zien van partner gezichten en perifere temperatuur

Gehechtheid en temperatuurregulatie

Gehechtheid en temperatuurregulatie

PREREGISTERED

IJzerman et al., 2018, *Journal of Experimental Social Psychology*

Gehechtheid en temperatuurregulatie

Studiedesign:

Totale *N* = 716

Invullen gehechtheidsvragenlijst (ECR-R)

PREREGISTERED

IJzerman et al., 2018, *Journal of Experimental Social Psychology*

Gehechtheid en temperatuurregulatie

Studiedesign:

Totale *N* = 716

Invullen gehechtheidsvragenlijst (ECR-R)

“I’m afraid I will lose my partner’s love” (angstig)

PREREGISTERED

IJzerman et al., 2018, *Journal of Experimental Social Psychology*