
Double Blind Study investigating the alleviation of extreme fear of cat in a clinical setting with Pet Remedy

ANDREW HALE NOVEMBER 2021

Abstract

This double-blind study was set up as a clinical, observational exercise to see if the addition of the Pet Remedy product might reduce the likelihood of severe anxiety after admission to a clinical setting. Videos were taken of 119 cats who had been admitted to a Veterinary Hospital, with footage taken of them in the cattery cage and then with them receiving some handling from Clinic staff. It was conducted with fully informed owner consent at Blythwood small animal practice. The cats were either exposed to the Pet Remedy product, or to a Placebo.

The video footage was collated by Andrew Hale and then sent to Roberta Roscini, an independent Feline Certified Behaviourist, to make observations based on the behaviour's witnessed in the footage. The video collation was undertaken independent of the subsequent observational study. Roberta had no access to data relating to which cats had the product or the placebo. Roberta based her observations on the international scale Cat Stress Score (CSS)* From Kassler & Turner. This scale scores as follows

1 = Fully Relaxed; 2 = Weakly Relaxed; 3 = Weakly Tense; 4 = Very Tense; 5 = Fearful, Stiff; 6 = Very Fearful; 7 = Terrified.

The objective of the observation study was to what percentage of the cats that scored a 6 or 7, based on the CSS scoring, had received the product or the placebo.

Notes on CSS scoring.

One of the first scales to assess stress was The Global Assessment Score, by Sandra McCune (1992). It defined descriptions of 10 levels of stress in cats. This was later reduced to 7 by Kessler and Turner (1997). They used it in their study comparing cats in shelters that were either housed individually, in pairs or in groups. This scale went on to be named 'Cat-Stress-Score' (CSS). This score has been well received by cat behaviour and shelter professionals. It is the most used method for assessing behaviours of stress in cats. The scoring scale consists of 7 grades, from the state of 'total relaxation' (score 1) to the state of 'extreme stress' (score 7). The resulting grade is obtained from a brief observation of the cat's posture and behaviour described in the ethogram developed by the British Cat Behaviour Working Group. This scale seems very reliable. A study by McCune mentions 100% repeatability among observers, and the originators Kessler and Turner reported a 90% match among observers who received training in the use of the scale and a 75% match among untrained shelter staff.

Method

Blinding.

Treatment and placebo were supplied by the manufacturer in 200 ml white plastic spray bottles labelled A and B respectively. The original treatments were known only to the sponsors and were not at any time disclosed to study personnel. However, clinic personnel could identify Pet Remedy

from its distinctive smell. That made a blind contemporaneous assessment impossible. Instead, clinic personnel took video recordings of the cats' behaviour during short, standardised tests.

Treatment allocation

Treatment allocation was randomised by week in balanced four-week blocks i.e. so each treatment would be given in two of every four weeks. As cats were only enrolled Monday to Friday, the weekend served as a washout period. Randomisation was by week not by cat because, otherwise, on a given day, a cat allocated placebo might smell or be affected by the Pet Remedy allocated to another cat that day. Also, there might be residues of Pet Remedy in a cage that, on the following day was designated placebo. The random allocation list was generated by computer (Figure 1).

Cat housing

Each clinic designated cages for use in the study, affixing them with laminated study cards on which only the date and the cat's ID were written (Figure 2). Eligible, enrolled cats were allocated to any of those cages on the day. The cages were furnished with a paper liner, covered by a clean fleece mat that covered at least the back quarter, left or right, of the cage, with a litter tray in the other corner of the cage (Figure 3). No food or water were supplied to the cats.

Treatment administration

In consultation with Animalcare, treatment administration was by spraying a new J-cloth with 3 pumps from ~10 cm, with the bottle upright. The cloth was placed in the cage, with sprayed side up, on the fleece (Figure 3).

Video Data Collection

There were 119 cats in total for the observation study. At least 20 minutes after the cat had been caged with the sprayed cloth (and before any sedative was given), a trained staff member performed two consecutive, one-minute behavioural tests that clinic personnel videoed with an Apple iPad.

- Approach test: the observer stood in front of the cage and talked gently to the cat, without staring directly at the cat
- Handling test: then, the observer opened the cage and stroked the cat under the chin.

Observation Study from the Videos.

The catalogue of video footage was given to Andrew Hale, Certified Animal Behaviourist, who works as a behaviour consultant for Pet Remedy. AH was instructed to oversee a study, using the video footage gained from the clinical setting, to provide data as to the potential efficacy of the product to reduce the likelihood of extreme fear responses of the cats. To ensure this, AH looked to employ a Certified Cat Behaviourist to view the footage, independent from the company and the initial video collation.

Roberta Roscini, an independent cat behaviour professional, was then employed to watch the videos and provide observational notes.

Roberta is a Feline Certified Behaviourist and Certified Animal Behaviourist. Roberta has over 10 years experience in the field. Roberta is the Former President of International Feline Behaviourists and current President of Centro Miciolandia® Perugia and a Operator in Relational Ethology.

Roberta was paid €500 to watch all the videos, with no prior knowledge of the cat's history or status regarding placebo or product. The task was to provide a brief overview of the observations from the

video and to assess the stress of the cat using the International Scale Cat Stress Score (CSS)* From Kassler & Turner as follows :

1 = Fully Relaxed; 2 = Weakly Relaxed; 3 = Weakly Tense; 4 = Very Tense; 5 = Fearful, Stiff; 6 = Very Fearful; 7 = Terrified.

Roberta listed the videos by their unique identity number, Stress level number based on the CSS and brief description. An example of which is below

02650

No contact with human

- ***Stress level:*** 3/4
- ***Observations:*** The cat is in a crouched position, pupils are dilated. She looks at the human and she doesn't show severe signs of stress. The tail is relaxed on the side of the body. She is calm but vigilant.

Contact with human

- ***Stress level:*** 4
- ***Observations:*** Pupils become fully dilated and she has an initial reaction of avoidance turning her head in order to avoid the human contact. Then she accepts the contact, she still is in a medium stress situation but she is calm and she doesn't show severe signs of stress

Final Data Extraction

On completion of the observations, Roberta sent the study data as a complete file (Appendix 1). It is widely recognised that most cats staying in a clinical setting are likely to be experiencing stress, so this study looked at what percentage of the cats observed were either 'Very Fearful' or 'Terrified'. Th

Out of the 119 cats observed, 16 matched those criteria in either one or both videos (Appendix 2)

Of these 16 cats, 12 were given the placebo and 4 had been given Pet Remedy. This equates to 75 % of those cats classified as either 'Very Fearful' or 'Terrified' having had the placebo and 25% having had the product.

Limitations of this observation study

This observational study is centred purely around observational data of the cat videos, with a decision on levels of stress as per the CSS scale. It is unclear of the health and condition of the cats, other than what could be ascertained via the video observations. Given this was a medical facility it is unlikely the cats were of full health and fitness. The observation data could only be collected on the state of the cat when the video was made, and there is not information regarding the cat's general temperament or stress levels ahead of the footage.

Conclusion

The strength in this study lies with the careful production, under strict clinical study parameters, of clear video data that was then passed to a suitably qualified professional who was independent of both the initial video collation and the company.

Whilst it can be difficult to make direct links between correlation and causation, this observational study does indicate that the addition of the Pet Remedy Product may reduce the likelihood of a cat becoming Very Fearful or Terrified as per the CSS scale.

About the Author.

Andrew Hale BSc is a Certified Animal Behaviourist working in the UK. Andrew has over 10 years' experience working in animal behaviour, predominately working with dogs. He was the Chair, and then Trustee, of the Association of INTODogs, and was a driving force behind the UK Dog Behaviour and Training Charter. He works as an independent behaviour consultant for Pet Remedy, advising on animal behaviour, and helping in collating of data to support external, independent clinical studies.

Figure 1 :

RANDOMISATION LIST			
name: <unnamed>			
log: C:\jen\PEOPLE\Hewson_Caroline\rd\md_alloc.log			
log type: text			
. clear all			
. set seed 369369369			
. * set up blocks (4 weeks)			
. set obs 40			
number of observations (_N) was 0, now 40			
. gen block=_n			
. expand 4			
(120 observations created)			
. sort block			
. * generate weeks within block			
. by block: gen blkweek=_n			
. . * randomly sort weeks within block and assign tx/placebo			
. gen rand=runiform()			
. sort block rand			
. by block: gen tx=0 if _n<2			
(80 missing values generated)			
. by block: replace tx=1 if _n<2			
(80 real changes made)			
. label define tx _lbl 0 "A" 1 "B"			
. label val tx tx _lbl			
. sort block blkweek			
. drop rand			
. * generate date for Monday of each week			
. gen week=_n			
. gen date=201562+(7*(week-1))			
. format date %td			
. order week date			
. list week date block tx, noobs table separator(4)			

week	date	block	tx
1	18apr2016	1	B
2	25apr2016	1	A
3	02may2016	1	A
4	09may2016	1	B
5	16may2016	2	B
6	23may2016	2	A
7	30may2016	2	A
8	06jun2016	2	B
9	13jun2016	3	A
10	20jun2016	3	B
11	27jun2016	3	A
12	04jul2016	3	B
13	11jul2016	4	A
14	18jul2016	4	B
15	25jul2016	4	B
16	01aug2016	4	A
17	08aug2016	5	A
18	15aug2016	5	A
19	22aug2016	5	B
20	29aug2016	5	B
21	05sep2016	6	A
22	12sep2016	6	A
23	19sep2016	6	B
24	26sep2016	6	B
25	03oct2016	7	B
26	10oct2016	7	A
27	17oct2016	7	A
28	24oct2016	7	B
29	31oct2016	8	A
30	07nov2016	8	A
31	14nov2016	8	B
32	21nov2016	8	B
33	28nov2016	9	A
34	05dec2016	9	B
35	12dec2016	9	A
36	19dec2016	9	B
37	26dec2016	10	A
38	02jan2017	10	B
39	09jan2017	10	B
40	16jan2017	10	A
41	23jan2017	11	A
42	30jan2017	11	A
43	06feb2017	11	B
44	13feb2017	11	B
45	20feb2017	12	B
46	27feb2017	12	A
47	06mar2017	12	B
48	13mar2017	12	A
49	20mar2017	13	B
50	27mar2017	13	A
51	03apr2017	13	B
52	10apr2017	13	A
53	17apr2017	14	A
54	24apr2017	14	B
55	01may2017	14	A
56	08may2017	14	B
57	15may2017	15	B
58	22may2017	15	A
59	29may2017	15	B
60	05jun2017	15	A
61	12jun2017	16	B
62	19jun2017	16	A
63	26jun2017	16	B
64	03jul2017	16	A
65	10jul2017	17	B
66	17jul2017	17	A
67	24jul2017	17	B
68	31jul2017	17	A
69	07aug2017	18	B
70	14aug2017	18	A
71	21aug2017	18	B
72	28aug2017	18	A
73	04sep2017	19	B
74	11sep2017	19	A
75	18sep2017	19	A
76	25sep2017	19	B
77	02oct2017	20	B
78	09oct2017	20	A
79	16oct2017	20	A
80	23oct2017	20	B
81	30oct2017	21	A

Figure 2:



Figure 3:

APPENDIX 1

Roberta Roscini

Feline Certified Behaviourist

Former President of International Feline Behaviourists

President of Centro Miciolandia® Perugia

roberta.rosca@gmail.com

www.centromiciolandia.it

My observations on the cat's stress levels are based on the international scale Cat Stress Score (CSS)*
From Kassler & Turner.

*CSS: 1 = Fully Relaxed; 2 = Weakly Relaxed; 3 = Weakly Tense; 4 = Very Tense; 5 = Fearful, Stiff; 6 = Very Fearful; 7 = Terrified.

190763

No contact with human

- Stress level: 5/6
- Observations: The video's quality is very low so it is not possible to observe all details. The body communication indicate a high level of stress. The general state is of very high fear, the body is crouched and still, the head is lower than the body, and the cat shows no signs of response to the external stimuli.

Contact with human

- Stress level: 6/7
- Observations: Total pupil dilation and body communication indicate a high level of stress. The cat performs an avoidance behavior by turning his head to the side. The contact by the person is very direct and the cat has no escape, the cat is in a total immobility state that indicates the higher level of stress. He is petrified and he shows no response to the stimuli. There is a very quick blinking but it is a non-voluntary reaction to the human touch near the eyes and ears, otherwise the eyes are always fully open and not reactive to the stimuli.

191577

No contact with human

- Stress level: -----
- Observations: The video's quality is very low, I can barely see the cat's face, I can't see her eyes, her breathing, her body movement, so it's impossible to determine the stress level.

Contact with human

- Stress level: 4
- Observations: The body communication indicates a medium level of stress. The cat

performs an avoidance behavior by turning her head to the side at the beginning, but she is more open to the human contact towards the end. She chooses to be still and not change her position during the contact and she shows several signs of being annoyed by the presence of the human's hand in the cage, but she reacts positively to a gentle contact in the neck region. I can't see her pupils clearly. Her general state is of medium fear, discomfort for the situation but not terror.

91601

No contact with human

- Stress level: 3/4
- Observations: Pupil dilation and body communication indicate a medium-low level of stress. The cat reacts to the vocal stimuli by looking directly at the person. He is vigilant, his pupils are slightly dilated, he doesn't move his body. I can't see his breathing nor his tail. The general state is of alert and medium level stress.

Contact with human

- Stress level: 3/4
- Observations: The body communication indicate a medium-low level of stress. The cat shows a little bit of interest towards the human by sniffing her hand, and also towards the noises outside the cage by moving his head accordingly, this is a proactive behaviour that indicates that the stress level is not impairing his ability to connect to the moment and his curiosity. In the end, he seems to appreciate the stroking on the cheek, but he is still in an alert mood and he doesn't feel relaxed enough to move from the back of the cage.

191670

No contact with human

- Stress level: 3/4
- Observations: Pupil dilation and body communication indicate a medium-high level of stress, but her behaviour indicates that she is not specifically stressed by the humans, she is instead very tense about being encaged. She shows some explorative behaviour that is a very proactive behaviour in a situation like this, and she also shows some marking behaviour rubbing her head against the cage. The general state is of active tension and medium level stress.

Contact with human

- Stress level: 3

- Observations: Her behaviour is very interesting, she clearly shows the desire to escape and she is not interested at all in the human contact. She hisses several times, the people there say that she's probably hissing to the other cats in the cages nearby, but she is actually hissing against the human in a non-threatening way (it is a warning hiss) because she shows clear signs of being very annoyed by the human direct contact and the impossibility to escape. She seems to be a cat used to human contact because she shows an automatic friendly reaction by raising her tail and keeping it in a friendly position, but she hisses when the human stops her from escaping. This is a cat that is having an overall appropriate behaviour in that specific situation, she is not highly stressed, but she shows signs of frustration because of the confinement.

191677

No contact with human

- Stress level: 4

- Observations: Pupil dilation and body communication indicate a medium-high level of stress. This is a young very agitated cat (she also seems to have some little coordination problems when she moves), she shows a clear discomfort because of the paper on the bottom of the cage and she tries to get rid of it by using the covering behaviour that's typical when covering faeces. She looks for a way to escape and she doesn't look for a direct visual contact with the human.

Contact with human

- Stress level: 4

- Observations: The cat actively tries to escape. She doesn't want the human contact at all, her only interest is in escaping. Her pupils are fully dilated, her body communication is of tension, anxiety, frustration. She briefly blinks to the human in an attempt to get her cooperation for letting her go free. She is not afraid of humans but she's not even interested in them. The physical contact by the person is definitely too strong and too much.

191678

No contact with human

- Stress level: 4

- Observations: This is a very young and agitated male. My observation in this case is exactly

the same as in the 191677 case (except for the coordination problems that are not present in this case).

Contact with human

- Stress level: 4
- Observations: My observation in this case is exactly the same as in the 191677 case.

191694

No contact with human

- Stress level: 5/6
- Observations: Pupil dilation and body communication indicate a high level of stress. The cat is completely still in a crouched position, immobility like this is a sign of high stress. Her pupils are fully dilated.

Contact with human

- Stress level: 6
- Observations: Total pupil dilation and body communication indicate a high level of stress. The cat performs an avoidance behavior by retracting and trying to avoid the human contact. Her pupils are fully dilated but her ears are pointed forward and she keeps her forepaws ready for defense, that means that in this case I would strongly advice not to touch this cat because there's a high risk of aggression out of fear. The stress level has definetly increased with the human contact.

191706

No contact with human

- Stress level: 3/2
- Observations: Pupil dilation and body communication indicate a low level of stress. The cat is in a natural comfortable position. Her pupils are slightly dilated. She moves after a while and she reaches the cage opening towards the humans. She doesn't show any particular signs of discomfort or fear.

Contact with human

- Stress level: 2
- Observations: The cat seems quite relaxed. She actively tries to escape but this is a completely normal behaviour according to the situation, and she does it in a very calm and ponderated way. She seems to like the human contact, even though it is a little bit too rough.

191707

No contact with human

- Stress level: 5/6
- Observations: Pupil dilation and body communication indicate a quite high level of stress. The cat stays still at the bottom of the cage, she looks at her surroundings with fear and her pupils are fully dilated. She doesn't engage in communication with the human.

Contact with human

- Stress level: 5/6
- Observations: Total pupil dilation and body communication indicate a high level of stress. The cat is still staying in the same position, she moves her head only as a reaction to the human pressure (even though in this case the human contact is very gentle). She expresses a high level of fear, her eyes are constantly scanning the situation around her and she chooses immobility as a defense. She looks very young, immobility in very young cats is always a sign of strong fear.

191738

No contact with human

- Stress level: 6/7
- Observations: The body communication indicate a very high level of stress. The cat is completely still in a crouched position with her head lower than the body, she hides in the litter box which is a way to feel more protected since she doesn't have any other place where to hide. She completely avoids any contact with the humans and the situation in general.

Contact with human

- Stress level: 6/7
- Observations: Total pupil dilation and body communication indicate a very high level of stress. The cat stays completely still when the human touches her, the human raises the cat's head but the cat immediately puts it back down lower than her body as soon as she has the possibility. She is completely not reactive to the stimuli.

191739

No contact with human

- Stress level: 3/4

- Observations: Pupil dilation and body communication indicate a medium level of stress.

The cat is reactive to the external stimuli. She stays in the back of the cage, but she changes her body position. She engages communication with humans several times.

Contact with human

- Stress level: 3
- Observations: Pupil dilation and body communication indicate a low level of stress. The cat reacts positively to the human contact. She actively reaches for contact and she blinks on purpose as positive communication with the human. Her stress level decreases with the human interaction.

191785

No contact with human

- Stress level: 4
- Observations: Pupil dilation and body communication indicate a medium-high level of stress. The cat is very worried by the vocalizations from the near cage. She is vigilant, her pupils are fully dilated, she doesn't move her body. The general state is of alert and medium level stress.

Contact with human

- Stress level: 3/4
- Observations: The stress level decreases when the cat sees that the cage is open. The cat shows a little bit of interest towards the human by sniffing her hand, but then she completely ignores the human contact and she focuses all her interest in trying to escape. She is not fearful of the human. Pupils remain fully dilated and the body posture expresses a medium level of stress.

191823

No contact with human

- Stress level: 3/4
- Observations: Pupil dilation and body communication indicate a medium level of stress. The cat reacts to the vocal stimuli by looking directly at the person and she blinks to the human a few times as a sign of positive communication. She is vigilant, his pupils are slightly dilated, he doesn't move his body. She doesn't show any severe sign of stress except for the immobility.

Contact with human

- Stress level: 3
- Observations: The body communication indicate a low level of stress. The cat is actively exploring, she doesn't show any sign of fear or aggression towards the human. She also comes very close to the human and actively sniff her arm. She licks her nose a few times as a calming sign. She is interested in escaping but she also shows to like the human contact.

191858

No contact with human

- Stress level: 3/4
- Observations: Pupil dilation and body communication indicate a medium-low level of stress. The cat stays right at the front of the cage and he doesn't show any sign of fear. His pupils are fully dilated. He has a visible abscess on his head, I don't know if this condition can create a special discomfort for him.

Contact with human

- Stress level: 3/4
- Observations: The body communication indicate a medium-low level of stress. The cat stays in the same position but he is reactive to the human contact. His pupils are still fully dilated. He expresses several signs of a high level of sadness (not specifically measurable with a stress scale) such as facial expression, body posture, eyes expression, avoidance of emotional contact. He licks his nose a few times as a calming sign.

191899

No contact with human

- Stress level: 3/4
- Observations: Pupil dilation and body communication indicate a medium level of stress. The cat reacts to the vocal stimuli and she vocalize looking for a way out of the cage. Her pupils are almost fully dilated, she moves a little bit in the cage. The general state is of alert and medium level stress.

Contact with human

- Stress level: 4/5
- Observations: When the human tries to touch her, her stress level suddenly increases. She immediately tries to go to the bottom of the cage, she turns so to be with her back towards the

human, her pupils become fully dilated, she shows an avoidance behaviour. She pushes her body down and she shows discomfort when she is touched and contained by the human. In the end, she is able to look at the human and stay sit normally, but her facial and body communication express still a medium-high level of stress.

191900

No contact with human

- Stress level: 4/5
- Observations: Pupil dilation and body communication indicate a medium-high level of stress. The cat is in a crouched position inside the litter box, she looks fearful. Her pupils are fully dilated, she is vigilant but she doesn't move and she hides in the litter box as an attempt to feel more protected.

Contact with human

- Stress level: 4/5
- Observations: There's a little decrease in her stress level when the human touches her, but her general state remains in a medium- high stress situation. She doesn't leave the litter box, she tries to avoid the contact a few times, her pupils remain fully dilated. She has a moment of activation when she tries to see outside the cage, but it's a brief moment.

191901

No contact with human

- Stress level: 4/5
- Observations: Pupil dilation and body communication indicate a medium-high level of stress. The cat is in a crouched position inside the litter box, he looks fearful. His pupils are almost fully dilated, he is vigilant but he doesn't move and he hides in the litter box as an attempt to feel more protected. He blinks a few times as a calming signal.

Contact with human

- Stress level: 5
- Observations: The stress level increases with the human contact. He crouches his body even more, he tries to avoid the contact but he is too afraid to change position so he stays still and waits for the contact to end. His pupils are fully dilated now and he avoids direct visual contact with the human.

191903

No contact with human

- Stress level: 4
- Observations: Pupil dilation and body communication indicate a medium level of stress.

The cat reacts to the vocal stimuli by looking directly at the person. She constantly blinks, she moves her head, but she remains inside the litter box.

Contact with human

- Stress level: 3/4
- Observations: The cat shows a medium level of stress, but she enjoys the human contact and she actively looks for it. She is not fearful and she seems comfortable with the human. Her body communication doesn't change, but her facial and emotional communication are quite positive towards the human and she doesn't show a severe level of stress.

191918

No contact with human

- Stress level: 3
- Observations: Pupil dilation and body communication indicate a medium-low level of stress. The cat reacts to the vocal stimuli by looking directly at the person. He is quite relaxed, he blinks a few times, he doesn't show any severe sign of stress.

Contact with human

- Stress level: 3
- Observations: The body communication indicate a low level of stress. The cat shows a little interest towards the human, he is quite relaxed and he doesn't show any sign of severe discomfort.

191958

No contact with human

- Stress level: 2
- Observations: Pupil dilation and body communication indicate a very low level of stress.

The cat reacts to the vocal stimuli by looking directly at the person. He interacts with the human by rubbing his body on the cage, he seems confident and he doesn't show almost any sign of stress.

Contact with human

- Stress level: 2

- Observations: The cat shows no sign of stress. He tries to escape which is a totally normal reaction in that context. He is confident and he enjoys human contact

191962

No contact with human

- Stress level: 4/5
- Observations: Pupil dilation and body communication indicate a medium-high level of stress. The cat keeps her head lower than the body, her pupils are almost fully dilated, and she avoids direct visual contact with the human.

Contact with human

- Stress level: 5
- Observations: The body communication indicates a medium-high level of stress. The cat doesn't want the human contact, she remains still after an initial attempt to go backwards but she's blocked by the litter box and she is too afraid to actively stand up and go back, so she stays. Her pupils are almost fully dilated. The human contact increased the stress level.

191963

No contact with human

- Stress level: 5/6
- Observations: She shows a pretty high level of stress. She is in hyperventilation, she yawns as a calming signal, she meows (it is a kind of meow that is usually related to a calling, as if she's looking for someone), she is constantly scanning the environment. She is not fearful but she is very stressed.

Contact with human

- Stress level: 4/5
- Observations: Seeing the cage open makes her a little less stressed. Her pupils are still dilated, she actively tries to escape. She is not interested in human contact but she shows a trusting behaviour towards the human (such as raising her tail up, looking directly in the eyes of the human and blinking, making little steps with her forepaws).

191995

No contact with human

- Stress level: 5/6
- Observations: High level of stress. Head lower than the body, motionless, scanning eyes.

Contact with human

- Stress level: 5/6
- Observations: He remains motionless. The stress level remains the same, he doesn't show any active interaction with the human contact, his head is moved by the human but he doesn't move it voluntarily. He blinks once but it seems to be an involuntary reaction to the touch on the whiskers.

192005

No contact with human

- Stress level: 2/3
- Observations: The cat is moving and rubbing around, his marking the cage with his scent. This is a very confident behaviour and he doesn't show any severe signs of stress. He doesn't seem interested in the human communication.

Contact with human

- Stress level: 2
- Observations: The cat is completely comfortable and confident. He interacts with the human and he enjoys the contact very much. There are no signs of stress.

192121

No contact with human

- Stress level: 3
- Observations: She actively follows the human voice and movement outside of the cage, her pupils are almost fully dilated, she blinks several times as a direct sign of communication with the human. She doesn't show any severe signs of stress, but she is in a vigilant and little tense condition.

Contact with human

- Stress level: 3
- Observations: She is not afraid of the human contact, but she is not even very much interested in it. After a little contact she becomes more confident and she moves trying to go towards the exit. Her pupils are fully dilated but her body communication shows a low level of stress.

192203

No contact with human

- Stress level: 3

• Observations: He is layed ventrally and he is moderately relaxed. He doesn't show severe signs of stress. His pupils are quite normal, he actively interacts vocally with the human, and he changes his position to a more comfortable one showing his back to the human (this means that he doesn't perceive the human as a threat).

Contact with human

- Stress level: 2

• Observations: He is comfortable with the human contact (even though the contact is very strong and invasive), he shows no signs of stress, he actively looks for more contact, he moves around in order to be closer to the human.

192243

No contact with human

- Stress level: 2/3

• Observations: This is a young cat quite relaxed. He doesn't show particular signs of stress. He is in a crouched but not fearful position. He doesn't make eye contact.

Contact with human

- Stress level: 2

• Observations: He doesn't show any signs of stress. He is not afraid of the human contact but he doesn't want it (the contact is very strong so it is not comfortable for the cat, but he is not bothered by the human presence). He actively tries to escape.

192244

No contact with human

- Stress level: 4/5

• Observations: The cat shows a medium-high level of stress. She is in a crouched position, she avoids visual contact with the human, her head is lower than the body. She remains still.

Contact with human

- Stress level: 4

• Observations: The body communication indicates a medium level of stress, slightly lower than before. The pupils are almost fully dilated. She changes her position and she moves around, she seems not afraid of the human contact and she actively tries to escape.

192255

No contact with human

- Stress level: 3/4
- Observations: Pupil dilation and body communication indicate a medium level of stress.

The cat reacts to the vocal stimuli by looking directly at the person. She is vigilant, her pupils are slightly dilated, she moves a little bit but then she chooses to stay away from the door.

Contact with human

- Stress level: 4
- Observations: When the cage is open she becomes more insecure. She tries to go towards the bottom of the cage and she is a little afraid of the human contact at first (the human approach is very strong and straight forward). She shows trust towards the human and she looks for comfort by asking for more contact. She is still in a quite high stress.

192593

No contact with human

- Stress level: -----
- Observations: The video quality is too low, I can only see a dark mass on the bottom of the cage, I can't determine her stress level.

Contact with human

- Stress level: 5
- Observations: The body communication indicate a high level of stress. She stays in a crouched position as far as possible from the human. She tries to avoid the human contact when it becomes too invasive. Her pupils are fully dilated. She stays completely still and she shows avoidance behaviour.

192596

No contact with human

- Stress level: 2
- Observations: The cat explores by sniffing around. He moves in the cage, he changes position. He is not interested in the human communication at all. He starts cleaning himself, which is a sign of a very relaxed status.

Contact with human

- Stress level: 1/2

- Observations: He is totally relaxed, he doesn't show any signs of stress. He enjoys the human contact.

192636

No contact with human

- Stress level: -----

- Observations: The video quality is too low to determine his stress level.

Contact with human

- Stress level: -----

- Observations: I can't see the cat's face nor his reaction for most of the footage so I can't determine his stress level.

192641

No contact with human

- Stress level: 6

- Observations: The cat shows a high level of stress. She stays in a fearful crouched position on the bottom of the cage, completely still, head lower than the body. She stares at the human out of fear. Her pupils are fully dilated

Contact with human

- Stress level: 5/6

- Observations: The cat is still in a high level of stress. She has a brief moment of interest for the human's hand but she immediately goes back to an avoidance behaviour. Her pupils are fully dilated. She remains in a crouched position.

192937

No contact with human

- Stress level: 4

- Observations: The body communication indicates a medium level of stress. Pupils are normal but the cat stays in a crouched position and she tries to hide her head behind the litter box. She looks at the human because she is afraid of what's happening around.

Contact with human

- Stress level: 5/6

- Observations: The stress level increases when the cage is open. When they remove the litter box the cat becomes even more stressed and terrified, she paralyzes, her pupils are fully

dilated, she doesn't react to any stimulus.

192991

No contact with human

- Stress level: 3
- Observations: The cat shows a medium-low level of stress. His pupils are normal, his body communication doesn't show particular signs of stress. He changes position from layed ventrally to sit (which is a more confident position). He is interested in the humans and he actively follows the vocal communication.

Contact with human

- Stress level: 3
- Observations: He doesn't show signs of stress. He is very confident, he interacts with the human, he sniffs her hand several times, he actively tries to escape in a calm and relaxed way and he accepts the human containment.

193007

No contact with human

- Stress level: 4
- Observations: The cat is in a crouched position, her head is above the body, her ears are actively moving to capture sounds, her pupils are quite normal. She avoids direct visual communication with the human, and she stays still at the bottom of the cage. She expresses fear by scanning around with her eyes.

Contact with human

- Stress level: 3/4
- Observations: The human contact helps her to lower the stress a little bit. She remains in the same position but she stretches one leg in the end (this shows that her stress level is lowering). She is not afraid of the human but she is still too insecure and fearful to try an active approach.

193008

No contact with human

- Stress level: 2
- Observations: The cat looks very friendly, he rubs against the cage and he actively tries to engage a communication with the human. He doesn't show any particular signs of stress,

except for the pupils that are fully dilated.

Contact with human

- Stress level: 2
- Observations: The cat doesn't show any signs of stress. He enjoys the human contact, his body communication is relaxed and confident. He is curious and he explores the possibility to escape but he is very calm and he accepts the human containment.

193150

No contact with human

- Stress level: 4
- Observations: The cat is in a crouched position, his head is lower than the body, his pupils are slightly dilated. He avoids direct visual communication with the human, and he stays still at the bottom of the cage.

Contact with human

- Stress level: 4
- Observations: The cat doesn't change his position, the pupils are almost fully dilated. He doesn't actively reacts to human contact. His body communication is of medium-high stress.

193151

No contact with human

- Stress level: 4
- Observations: The cat is in a crouched position, his head is lower than the body, his pupils are dilated. He blinks a few time sas a calming signal. He doesn't move and he avoids direct contact.

Contact with human

- Stress level: 4
- Observations: The cat doesn't react to the human contact. He remains still in the same position, he closes his eyes as an automatic response to the touch on the cheek near the eyes and whiskers. His stress level is still medium-high.

193183

No contact with human

- Stress level: 3/4
- Observations: The cat is layed ventrally, he changes position a few times and he shows a

little bit of his belly for a few seconds. He is actively looking around, he is sniffing the litter box, he looks at the human engaging in a visual communication. He licks his nose a few times as a calming signal and a way to expand his smell perception.

Contact with human

- Stress level: 3/4
- Observations: The cat is still tense but enjoys human contact. He changes position and he stands up, this is a sign of a lower level of stress. He explores and he actively interacts with the human. His pupils are dilated.

193425

No contact with human

- Stress level: 3
- Observations: The cat shows a low level of stress. She moves around the cage, she sits, she also starts to clean herself. She has a confident behaviour even though she is vigilant. Her pupils are dilated.

Contact with human

- Stress level: 2/3
- Observations: The cat is very comfortable with the human contact, she actively looks for more contact, she shows no signs of stress. She sniffs the human hand and she is very confident.

193426

No contact with human

- Stress level: -----
- Observations: The cat is totally focused on something outside the cage and I can't clearly see his face. I can't determine his stress level.

Contact with human

- Stress level: 2
- Observations: The cat is very comfortable with the human contact, he actively looks for more contact, he shows no signs of stress. He sniffs the human hand and he is very confident.

193427

No contact with human

- Stress level: 2

• Observations: The cat is not stressed. He moves around, he shows his belly, he actively tries to establish a visual contact with the human, he rubs against the cage in order to get the human attention.

Contact with human

- Stress level: 1/2

• Observations: The cat shows no signs of stress. He is completely comfortable with the human contact, he looks for it, he wants to be cuddled, he looks for more interaction.

193466

No contact with human

- Stress level: 2/3

• Observations: The cat show a low level of stress. She meows intentionally to get the attention of the human, she moves around, she rubs against the cage, she stretches, she engages in visual contact.

Contact with human

- Stress level: 2/3

• Observations: The cat shows no particular signs of stress. She enjoys human contact. She tries to escape but she is very calm.

193544

No contact with human

- Stress level: 2/3

• Observations: The cat show a low level of stress. She meows intentionally to get the attention of the human, she moves around, she rubs against the cage, she stretches, she engages in visual contact.

Contact with human

- Stress level: 3

• Observations: The cat actively tries to escape a she is a little bit more agitate. In general, she shows a low level of stress.

193573

No contact with human

- Stress level: 4/5

- Observations: The cat doesn't respond to the environment. He is layed ventrally with the head lower than the body, he keeps his eyes almost closed. His body communication indicates a medium-high level of stress.

Contact with human

- Stress level: 6
- Observations: The cat is completely still, he doesn't react to any contact, he doesn't engage in any kind of communication. His body position suggests a very high level of stress.

193955

No contact with human

- Stress level: 3
- Observations: The cat is strongly looking for contact. She shows a medium-low level of stress, but she is a little agitated. She moves around a lot, she rubs against the cage, she makes little steps with her forepaws, she blinks, she meows.

Contact with human

- Stress level: 4
- Observations: The cat actively tries to escape and she is more agitated. Her only interest is to escape, she accepts the human contact but she is not interested in it. She bites the human hand because the human is stopping her from escaping, but it is not an aggressive bite, it is a stop-bite (a bite with the pourpose of stopping hte thing that is creating discomfort to the cat).

194020

No contact with human

- Stress level: 4/5
- Observations: The cat is showing a medium-high level of stress. He meows out of anxiety (an irregular aimless meowing), he is in a crouched position, he doesn't move except for his head, his pupils are dilated, his eyes are scanning.

Contact with human

- Stress level: 4
- Observations: He trusts humans and he enjoys the contact, but he is still stressed and he looks for a way out. His pupils are fully dilated. He shows some friendly behaviours such as raising his tail up and rubbing against the human hand, but his body communication also

shows a very tense state. He keeps meowing out of stress.

194098

No contact with human

- Stress level: 3
- Observations: The cat is strongly looking for contact and for escape. He doesn't show severe signs of stress but he is a little bit agitated. He moves around, he tries to open the cage, he meows.

Contact with human

- Stress level: 3/4
- Observations: The cat actively tries to escape and he is more agitated. His only interest is to escape, he accepts the human contact but he is not interested in it. His pupils are fully dilated. (The human interaction is very strong and it contributes to make the cat even more agitated. A more delicate and slow touch would have a more calming effect)

194099

No contact with human

- Stress level: 4
- Observations: The cat is very agitated, his pupils are fully dilated, he tries to escape even with the cage closed. His body communication shows a very agitated state.

Contact with human

- Stress level: 4
- Observations: The cat actively tries to escape. He trusts humans and he tries to use the human as a way to go out. He shows several positive interactions such as rubbing his chin on the human's chin and blinking, but his main goal is to escape. Having the cage open makes him a little bit less stressed.

194325

No contact with human

- Stress level: 4
- Observations: The cat is showing a medium-high level of stress. He emits a meowing that is half a warning and half panic. I would be very careful in touching this cat because his body communication shows a possibility of aggression (he stares at the human with his pupils

constrict, he brings his head and chest forward when he's sitting staring, he emits a very low tone meow).

Contact with human

- Stress level: 4
- Observations: The cat actively tries to escape. He keeps showing moments of potential aggression (there are several times where he stares at the human and his body posture suggests that he's thinking if he could attack or not. Moving the hands so quickly in front of his face and touching him so strongly is not advisable in this specific case.

194327

No contact with human

- Stress level: 3
- Observations: The cat is trying to rest but he is very annoyed by the noise from another cat nearby. He doesn't show severe signs of stress, he is lying ventrally in a quite relaxed position. He blinks as a sign of positive communication with the human, he also moves a little bit to show a more open position as a positive sign towards the human who's talking.

Contact with human

- Stress level: 2
- Observations: The cat looks comfortable and relaxed, he doesn't show any signs of stress.

194437

No contact with human

- Stress level: 4
- Observations: The cat is in a crouched position near the litter box. She blinks a lot a calming signal. She doesn't move. In the end she reacts to something outside by opening her eyes and her pupils are fully dilated. Her body posture suggests a medium level of stress.

Contact with human

- Stress level: 4
- Observations: The cat doesn't change her position, she doesn't actively interact with the human, she remains in a state of medium level stress. Her pupils are dilated and she shows avoidance behaviour by turning her head away from the human's hand.

194438

No contact with human

- Stress level: 3

• Observations: The cat is resting in a layed ventrally position. He blinks several times as a calming signal. His body and facial communication show that he doesn't want to be bothered, but he is not so much stressed.

Contact with human

- Stress level: 4/5

• Observations: The human contact immediatly increases his stress level. He lowers his head, his pupils become fully dilated, he tries to go backwards and to avoid the human's hand. His facial expression indicates a state of fear and strong discomfort. He engages in a smelling activity on the wall of the cage in order to interrupt the physical contact (this is a typical avoidance behaviour often used during fights or very tense situations) and he tries to press his body as much as he can on the bottom of the cage.

194443

No contact with human

- Stress level: 4/3

• Observations: The cat is at first in a crouched position, her head is higher than the body, pupils are normal, she is vigilant and she doesn't move. In the end, she changes her position and she sits, she blinks a few times showing a more relaxed condition.

Contact with human

- Stress level: 3/4

• Observations: The cat looks very insecure. Her body communication shows a medium level of stress. She doesn't actually know if engaging more in the contact or not, she is tense but she also enjoys the cuddle. Her pupils are normal, she is vigilant but she is also very calm.

194493

No contact with human

- Stress level: 2/3

• Observations: The cat is in a low stress situation, he moves around, he marks and rubs against the cage, he explores, and he makes direct eye contact with the human.

Contact with human

- Stress level: 3

• Observations: The cat is very sociable, he shows a friendly behaviour, he doesn't show any

signs of severe stress. With the cage open he feels a little bit more insecure so he prefers to go inside the litter box, but he remains very calm and relaxed.

194688

No contact with human

- Stress level: 4
- Observations: The cat is in a medium stress level. He stays in a crouched position, he blinks a few times. He responds to the human vocal communication by turning his head towards the voice and closing his eyes. He doesn't change his position.

Contact with human

- Stress level: 3/4
- Observations: The cat looks still insecure. His pupils are normal. He doesn't move at first but then he feels comfortable enough to stand up and move. He shows a medium-low level of stress.

194908

No contact with human

- Stress level: 4/5
- Observations: This is a very young and worried cat. She is confused and agitated, she meows as a request for help just the way kittens do when they feel in danger and they ask for mom's help. She is shaking, this can be a very serious sign of stress (unless it is caused by a physical condition), but the rest of her body communication indicates that probably she is having a mixed kind of reaction because she is very confused and doesn't know how to react to this situation. She is in a medium-high level of stress.

Contact with human

- Stress level: 4
- Observations: The cat actively tries to escape. Her pupils are still fully dilated. She responds well to the human contact and in the end it seems to give her some comfort. She is still in a medium level of stress.

194920

No contact with human

- Stress level: 6
- Observations: The cat is in a high level of stress. He is in a crouched position, he doesn't

move, he hides behind the litter box and he doesn't make any eye contact. He is completely not reactive to the stimuli.

Contact with human

- Stress level: 6/7
- Observations: The cat is terrified. Removing the litter box, which is his only way to hide, makes him fall into an even more severe state of stress. He is petrified, he doesn't react to the contact, he tries to focus on the wall in front of him and he stays still.

194939

No contact with human

- Stress level: 5
- Observations: The cat shows a high level of stress. He stays still in a crouched position, his pupils are fully dilated, he tries to avoid visual contact but he also stares at the human in order to control the situation. He doesn't move and he tries to hide behind the litter box.

Contact with human

- Stress level: 5
- Observations: The cat is still in a high level of stress. He turns his head to avoid contact but he has no space to go further away. When he is forced to chin up he licks his nose as a calming signal and he immediately tries to turn away. His pupils are fully dilated. He doesn't want contact.

195055

No contact with human

- Stress level: -----
- Observations: The cat is completely hidden inside the litter box, I can't see him so I can't establish his stress level.

Contact with human

- Stress level: 6/7
- Observations: The cat is in a very high level of stress. Pupils fully dilated, ears flattened, completely hidden inside the litter box. He doesn't move and he doesn't respond to the human contact.

195120

No contact with human

- Stress level: 4/5

• Observations: The cat is crouched, she is scanning with her eyes, she is motionless. She shows a medium-high level of stress.

Contact with human

- Stress level: 5/6

• Observations: The stress level increases with the human contact. The cat is completely motionless, she avoids eye contact, her pupils are fully dilated. She is terrified and she shows a total immobility in the end.

195121

No contact with human

- Stress level: 5/6

• Observations: The cat is not responsive. She stays completely still, she doesn't engage in any kind of communication, her head is lower than the body, pupils are fully dilated.

Contact with human

- Stress level: 5/6

• Observations: The cat is completely still, she doesn't react to the human touch, she avoids eye contact, she is motionless, pupils are fully dilated.

195158

No contact with human

- Stress level: 4/5

• Observations: The cat is crouched and tries to hide behind the litter box. Her head is lower than the body, pupils dilated, she is motionless and she doesn't respond to any stimuli.

Contact with human

- Stress level: 5

• Observations: The head is even lower, ears flattened backwards, she doesn't make eye contact, she doesn't participate in the interaction. Her blinking is an automatic response to the human touching the whiskers.

195159

No contact with human

- Stress level: 4/5

• Observations: The cat is crouched and tries to hide behind the litter box. His head is lower

than the body, pupils dilated, he is motionless and he doesn't respond to any stimuli.

Contact with human

- Stress level: 5
- Observations: The head is even lower, he doesn't make eye contact, he doesn't participate in the interaction. He tries to avoid the contact turning his head away and focusing on keeping his head straight in front.

195179

No contact with human

- Stress level: 6
- Observations: Very high level of stress. Crouched position, pupils fully dilated, immobility, scanning eyes, lower head, flattened ears. The body communication indicates a very stressed condition.

Contact with human

- Stress level: 6
- Observations: The stress remains very high. Crouched position, pupils fully dilated, immobility, scanning eyes, lower head, partially flattened ears. The body communication indicates a very stressed condition.

195180

No contact with human

- Stress level: 4
- Observations: The cat is in a crouched position, pupils are slightly dilated, he is motionless. He blinks a few times as a calming signal.

Contact with human

- Stress level: 4/5
- Observations: Pupils are fully dilated, he licks his nose a few times as a calming signal and a sign of higher stress. He turns his head to avoid contact, his body remains motionless. The stress level is higher with the human contact.

195408

No contact with human

- Stress level: 4
- Observations: The cat is initially layed ventrally and than she changes a little bit her position

into a more crouched position, indicating an increase in the stress level. She makes direct eye contact, she is vigilant, her body communication expresses a medium level of stress.

Contact with human

- Stress level: 4
- Observations: Pupils are fully dilated, she remains motionless, she is very vigilant and she is scared by the noises in the room. She doesn't engage in any kind of communication, she doesn't react to the human touch. She closes her eyes only as a natural response to the touch on her cheek.

195587

No contact with human

- Stress level: 4/5
- Observations: Pupils fully dilated, crouched position, motionless, head lower than the body. Slight movement of the head in order to avoid direct eye contact. She shows a medium-high level of stress.

Contact with human

- Stress level: 4/5
- Observations: Her stress increases, pupils are fully dilated, she goes backwards and she hides into the litter box. Her facial and body communication indicate a high stress and fear.

195588

No contact with human

- Stress level: -----
- Observations: The video quality and frame is too low to understand his stress situation.

Contact with human

- Stress level: 2/3
- Observations: He shows several signs of positive communication (raising the tail up, rubbing his chin, blinking, actively engaging into the interaction and looking for more contact). He looks a bit asleep and he shows no severe signs of stress.

195618

No contact with human

- Stress level: 4/3
- Observations: The cat is vigilant, she actively follows the movements outside the cage, she

makes direct eye contact. She is layed ventrally and she doesn't change her position. She is focused on the humans and she moves her head accordingly.

Contact with human

- Stress level: 4
- Observations: Pupils are fully dilated, she actively tries to escape, she is not interested in human contact but she is not afraid of humans. She licks her nose a few times as a stress release.

195698

No contact with human

- Stress level: 4/5
- Observations: The cat is vigilant, he licks his nose several times indicating a medium-high level of stress. He is in a crouched position and he doesn't move. He follows every noise and movement in the room.

Contact with human

- Stress level: 4
- Observations: He keeps licking his nose, pupils are dilated, he doesn't react to the human contact. He tries to avoid the contact a few times, but he is generally a little less stressed than before.

195703

No contact with human

- Stress level: -----
- Observations: The cat is completely hidden in the litter box, I can't see her emotional state.

Contact with human

- Stress level: 6
- Observations: Pupils are fully dilated, she presses her head to the ground, she is completely motionless, she doesn't react to any contact. Her body communication indicates a very high stress level.

195905

No contact with human

- Stress level: 3/4
- Observations: He is active, he smells the floor, he meows as a request, he blinks as a

positive communication. He stays layed ventrally but he moves his head and he is very focused on every sound and movement.

Contact with human

- Stress level: 3/4
- Observations: He tries to escape, he is not interested in human contact and he is a little bothered by it (it is though a quite intrusive contact), pupils fully dilated, he moves around. His only interest is to escape, but he is not agitated.

195933

No contact with human

- Stress level: 5
- Observations: She is in a crouched position inside the litter box, pupils dilated, she blinks as a calming signal. Her body communication indicates a high level of stress.

Contact with human

- Stress level: 5
- Observations: She remains in the same position inside the litter box. Pupils fully dilated. She moves her head to control the environment, she is very vigilant and she shows a medium-high level of fear.

195999

No contact with human

- Stress level: 3
- Observations: He marks with his scent by rubbing his back on the floor. He shows a relaxed behaviour, he looks directly at the human, he blinks as a sign of positive communication, he moves around doing his own business.

Contact with human

- Stress level: 3
- Observations: He moves around, he enjoys the human contact. He doesn't show any severe signs of stress. He goes a few times in the litter box but his body communication suggests that he has to go to the toilet and they caught him in that moment where he needs to go but at the same time he enjoys company.

196092

No contact with human

- Stress level: 2/3

• Observations: He moves around, his body communication indicates a low level of stress. He makes eye contact, he rubs against the cage, he explores, and he finally rests layed ventrally.

Contact with human

- Stress level: 2

• Observations: He doesn't show any sign of severe stress. He enjoys human contact.

196093

No contact with human

- Stress level: 4/5

• Observations: he tries to hide behind the litter box, he is in a crouched position. He moves his head to avoid direct contact, his body communication suggests a medium-high stress level.

Contact with human

- Stress level: 3/4

• Observations: He immediately tries to escape. He is not interested in human contact, but he is not afraid of it. His focus is on finding a way out but he is not agitated. Pupils are normally dilated, ears are normal, his body communication indicates a lower stress level.

196324

No contact with human

- Stress level: 3

• Observations: The cat stays at bottom of the cage but he looks quite relaxed, he is layed ventrally but then he moves and he exposes his belly. Pupils are dilated. He is responsive and he actively engages with the human communication.

Contact with human

- Stress level: 3/4

• Observations: His stress increases a little bit, he doesn't feel secure enough to move from his spot, but he stands up and he enjoys human contact. He actively looks for more contact. Pupils are fully dilated. He is calm.

196455

No contact with human

- Stress level: 3

- Observations: The cat is playing and rolling, she moves around, she explores and smells.

Contact with human

- Stress level: 2

- Observations: She's very sociable and curious, she tries to escape but she is not agitated.

She looks relaxed and maybe bored.

196456

No contact with human

- Stress level: 2/3

- Observations: The cat doesn't show signs of stress. He is active, he moves around, he displays friendly communication behaviour.

Contact with human

- Stress level: 2

- Observations: He is very sociable and friendly, he doesn't show signs of particular stress.

196557

No contact with human

- Stress level: 3

- Observations: She looks sleepy, she is resting layed ventrally, she blinks as a sign of positive response to the vocal communication. She shows a low level of stress.

Contact with human

- Stress level: 3

- Observations: She remains calm, she has a friendly response to the human contact. She doesn't change her position but she could be sleepy since she was just going to rest before the cage was opened.

196624

No contact with human

- Stress level: 2/3

- Observations: The cat is sitting, she is curious and she looks outside, she doesn't display any severe stress behaviours. She then moves and prepares to rest.

Contact with human

- Stress level: 3

- Observations: She tries to escape, she is not very interested in human contact but she is calm

and she is curious towards the human. She shows a low level of stress.

196818

No contact with human

- Stress level: 4
- Observations: The cat stays crouched in the litter box, he is vigilant, pupils are normal. He swallows saliva a few times (that's a sign of stress). He moves his head and he looks at the human.

Contact with human

- Stress level: 3/4
- Observations: Human contact seems to be very comforting for him. He immediately shows positive signs of friendly communication (sniffing the hand, rubbing, blinking, pushing his head against the hand). In the end he feels confident enough to move and step outside the litter box.

196819

No contact with human

- Stress level: 4
- Observations: The cat stays crouched at the bottom of the cage, he tries to partially hide behind the litter box. His body communication indicates a medium level of stress.

Contact with human

- Stress level: 4/3
- Observations: Human contact comforts him, he exposes his belly and starts to purr. His body communication is much more relaxed, he shows a low level of stress even though he doesn't feel confident enough to move from the bottom of the cage.

196854

No contact with human

- Stress level: 4/3
- Observations: The cat is layed ventrally, pupils are normal, he stays still until he finally changes position to a more relaxed one (layed laterally). He doesn't show severe signs of stress but he seems a bit off, I'm thinking more because of a physical discomfort than a psychological one.

Contact with human

- Stress level: 3

- Observations: I confirm my first impression that he is a bit off because some physical pain or discomfort. He is friendly with the human and he doesn't dislike the contact, but he is not totally himself because of some condition that is not explained in the video. He is calm and relatively relaxed.

196861

No contact with human

- Stress level: 4

- Observations: The cat is in a crouched position at the bottom of the cage, she is motionless and she stares at the same point without reacting to the vocal communication.

Contact with human

- Stress level: 4

- Observations: She likes human contact but she is still too afraid to move. She remains crouched at the bottom of the cage. She has a little tiny movement of her back and tail when the human touches her there but it is very subtle and not intentional. She shows a medium level of stress.

197072

No contact with human

- Stress level: -----

- Observations: I can't clearly see his face and body so I can't determine his stress level properly.

Contact with human

- Stress level: 2/3

- Observations: He immediately activates and tries to escape, but he is moderately calm. Pupils are dilated. His body communication indicates a low level of stress.

197077

No contact with human

- Stress level: 4

- Observations: Crouched position, head lower than the body, he avoids direct visual contact. His body communication indicates a medium-high level of stress.

Contact with human

- Stress level: 4/5

• Observations: He licks his nose several times. Pupils are dilated. He tries to avoid contact by turning his head a few times. His body communication indicates still a medium-high level of stress. He has no active response to the human touch.

197199

No contact with human

- Stress level: 5

• Observations: The cat is completely not responsive, he keeps his head low, he completely avoids eye contact, he is motionless. His body communicates a high level of stress.

Contact with human

- Stress level: 6

• Observations: Stress increases. He puts his tail closer to the body, he turns his head to avoid contact, pupils are dilated, he is totally not responsive. He crouches his body even more against the bottom of the cage.

197200

No contact with human

- Stress level: 4

• Observations: The cat stays at the front of the cage but he is squeezed between the litter box and the cage (this condition probably makes him feel contained and so more secure). Pupils are dilated. He has a little reaction to the human voice, but he doesn't move from his spot.

Contact with human

- Stress level: 4/3

• Observations: He has a spike of stress when the cage is opened, but then he finds comfort in the human touch. In the end he feels confident enough to stand up and move around. He doesn't show signs of high stress.

197390

No contact with human

- Stress level: 2/3

• Observations: He is layed ventrally exposing his belly, pupils are normal, he is reactive and moves his head, he blinks a few times. He doesn't show signs of high stress.

Contact with human

- Stress level: 2

• Observations: He looks very confident, he likes the human contact, he moves around and he explores. He doesn't show signs of stress. He looks outside to escape but he very calm.

197420

No contact with human

- Stress level: 4/3

• Observations: The cat is layed ventrally at the bottom of the cage. Pupils are normal. The head is reactive and moving in response to the noises. She closes her eyes a few times. She doesn't move. Her body communication indicates a medium level of stress but she is calm.

Contact with human

- Stress level: 4/3

• Observations: She reacts with a little bit of fear at first, but then she relaxes and she likes the human touch. She doesn't feel relaxed enough to move or change her position into a more open one. She is calm and she shows friendly behaviour towards the human.

197451

No contact with human

- Stress level: 4

• Observations: He stays in the litter box, he meows as a request for help, he looks insecure. He is reactive to the sounds and noises. Pupils are normal. He displays signs of anxiety such as scanning eyes, excessive aimless meowing, repeatedly turning his head around.

Contact with human

- Stress level: 4

• Observations: He doesn't completely trust human contact, he actively tries to escape. Pupils are fully dilated. He moves with the back part of his body lower than the front (a sign of stress and fear).

197453

No contact with human

- Stress level: 3

• Observations: The cat meows as a request for help but also because he is responding to the other mowing from the other cages around. He lays quite relaxed, he also starts to clean himself a little bit. Pupils are normal, no signs of severe stress.

Contact with human

- Stress level: 2
- Observations: He remains very relaxed, he likes human contact, he shows moments of curiosity towards the human's hand. He doesn't show any signs of stress.

197463

No contact with human

- Stress level: 6
- Observations: The cat is in a total state of immobility, he is in a crouched position, he is motionless and he doesn't react to any sound. He seems to be sick.

Contact with human

- Stress level: 6
- Observations: Pupils are fully dilated. I suspect that he has some physical condition going on because he shows signs of physical discomfort and he seems not totally himself, like if he was sedated.

197481

No contact with human

- Stress level: -----
- Observations: He completely avoids any kind of contact, I can't see his face nor his body properly so I can't determine his stress level.

Contact with human

- Stress level: 3
- Observations: He is not highly stressed, but he is minding his own business and he is not very much interested in the human contact. He likes a little cuddle but not too much. He doesn't show severe signs of stress. Pupils are normal.

197499

No contact with human

- Stress level: 4
- Observations: The cat is layed ventrally, pupils are dilated, he is vigilant but he doesn't move. His body communication suggests a medium stress level.

Contact with human

- Stress level: 4

- Observations: He is still in a medium stress level situation. Pupils are dilated. He is not actively responding to the human contact. He is calm. He show signs of medium stress.

197500

No contact with human

- Stress level: 2/3
- Observations: The cat show very friendly behaviour. He rubs, he moves around, pupils are normal, he blinks, he shows his belly, he expose his head towards the humans. He doesn't show signs of particular stress.

Contact with human

- Stress level: 2
- Observations: He keeps having a very friendly behaviour (tail up, moving around, rubbing, blinking). He likes human contact. He exposing all his body to the contact. He doesn't show relevant signs of stress.

197546

No contact with human

- Stress level: 3
- Observations: The cat doesn't show significant signs of stress. He is layed ventrally in a relaxed position, he blinks. He doesn't seem very interested in the human. Pupils dilated

Contact with human

- Stress level: 3
- Observations: he is not severely stressed but he is bothered by the human contact (which is not exactly appropriate, it is too invasive and it goes to the back towards the tail in a too direct manner). He reacts negatively to the contact on the back but he doesn't show any sign of aggression. He is calm and controlled.

197583

No contact with human

- Stress level: 5
- Observations: Pupils dilated, ears partially flattened, she is in a crouched position inside the litter box. She look very frightened. Her body communication indicates a high level of stress.

Contact with human

- Stress level: 5/6

- Observations: She is clearly afraid of the human, she is in a freezing condition, pupils fully dilated, crouched position, motionless, she doesn't react to the contact and she stares at the human with fear. She is in a high stress.

197584

No contact with human

- Stress level: 5
- Observations: The cat is crouched inside the litter box, pupils fully dilated, head lower than the body, immobility, he stares with fear.

Contact with human

- Stress level: 6/7
- Observations: The stress increases evidently with the human contact. He shows signs of very high stress, avoidance behaviour, pupils fully dilated, ears flattened, staring in terror, immobility, trying to push his body against the bottom of the cage.

197841

No contact with human

- Stress level: 3/4
- Observations: This is a very young cat, he is agitated and he seeks for contact. He wants to escape. He shows a friendly behaviour but he is very agitated.

Contact with human

- Stress level: 3
- Observations: The contact makes him relax. He loves contact and he actively looks for more. He tries to escape but he is calm now. He is very sociable and friendly.

197983

No contact with human

- Stress level: 2/3
- Observations: The cat is layed ventrally, he is relaxed, he blinks, he moves to a more comfortable position with his belly exposed, pupils are normal, he doesn't show any significative signs of stress.

Contact with human

- Stress level: 2/3

- Observations: He enjoys contact, he remains relaxed (except for the first seconds in which he looks a little preoccupied). Pupils are normally dilated. He shows a friendly reaction.

198168

No contact with human

- Stress level: 4
- Observations: Pupils are dilated, he hides behind the litter box, he is very sad and he meows to ask for help (he meows in the typical way kittens meow when they are afraid)

Contact with human

- Stress level: 4
- Observations: He is still in a medium stress level situation. Pupils are dilated. He moves from his position and he explores the possibility to escape. Human contact is a little too much for him. He remains fearful.

198568

No contact with human

- Stress level: 5
- Observations: He is in a crouched position pressed to the bottom of the cage. Pupils are dilated, He blinks as a calming signal. The head is lower than the body.

Contact with human

- Stress level: 4/5
- Observations: He remains motionless and crouched. He doesn't react to the human contact. Pupils are dilated. He seems to feel discomfort when they touch his ears or around them. His body communication indicates a medium-high level of stress.

198611

No contact with human

- Stress level: 2
- Observations: He doesn't show any significant signs of stress. Tail's up, he moves around, he rubs, he blinks, he purrs, he makes little steps, he shows a totally friendly behaviour.

Contact with human

- Stress level: 2
- Observations: He is not stressed. He enjoys cuddles, he looks for more contact, he shows a totally friendly and relaxed behaviour.

198654

No contact with human

- Stress level: 3/4
- Observations: The cat is layed ventrally, pupils are dilated, she is vigilant but she doesn't move. Her body communication suggests a medium-low stress level.

Contact with human

- Stress level: 3
- Observations: She likes human contact. She looks curious and she explores the possibility of escaping. Her body communication doesn't suggest significant stress.

198782

No contact with human

- Stress level: 2
- Observations: The cat is layed ventrally, she sleeps, she moves a little bit in a more comfortable position. She doesn't show significant signs of stress.

Contact with human

- Stress level: 2
- Observations: she remains quite relaxed, she enjoys human contact and she actively looks for more, she shows a friendly behaviour and she doesn't show significant signs of stress.

198821

No contact with human

- Stress level: 4/3
- Observations: she is in a crouched position, she moves a little bit, she blinks as a positive sign of communication. Pupils are dilated. She is vigilant and she looks a little bit worried, but she is calm.

Contact with human

- Stress level: 3
- Observations: She enjoys the human contact and it makes her relax. She finally stands up, tail up, very friendly behaviour. She blinks and she shows a much more relaxed state.

21793

No contact with human

- Stress level: 4/5

- Observations: The cat is in a crouched position on the back of the cage. Her head is lower than the body, she avoids eye contact, she is completely still.

Contact with human

- Stress level: 5
- Observations: she remains in a very high level of stress. She is motionless, pupils fully dilated, crouched position, she doesn't react to human contact.

APPENDIX 2

id	clinic	spray	Video 1	Video 2
21793	B	B	45	5
190763	B	B	5 6	6 7
191577	B	A		4
191601	B	B	3 4	3 4
191648	B	B	4	5
191670	B	A	3 4	3
191677	B	A	4	4
191678	B	A	4	4
191694	B	B	5 6	6
191706	B	B	3 2	2
191707	B	A	5 6	5 6
191738	B	B	6 7	6 7
191739	B	B	3 4	3
191785	B	A	4	3 4
191786	B	A	2	2 3
191823	B	A	3 4	3
191858	B	B	3 4	3 4
191899	B	A	3 4	4 5
191900	B	A	4 5	4 5
191901	B	A	4 5	5
191903	B	A	4	3 4
191906	B	A	2 4	3 4
191918	B	B	3	3
191958	B	A	2	2
191962	B	A	4 5	5
191963	B	A	5 6	4 5
191995	B	A	5 6	5 6
192005	B	A	2 3	2
192099	B	B	3 4	3 4
192121	B	A	3	3
192203	B	A	3	2
192242	B	B	2 3	4
192243	B	B	2 3	2

192244	B	A	4 5	4
192255	B	B	3 4	4
192593	B	A		5
192596	B	A	2	1 2
192641	B	B	6	5 6
192937	B	B	4	4
192991	B	B	3	3
193007	B	B	4	3 4
193008	B	B	2	2
193150	B	B	4	4
193151	B	B	4	4
193183	B	A	3 4	3 4
193425	B	B	3	2 3
193426	B	B		2
193427	B	B	2	1 2
193466	B	B	2 3	2 3
193544	B	B	2 3	3
193573	B	B	4 5	6
193731	B	B		
193741	B	B	5 6	6 7
193955	B	A	3	4
194020	B	A	4 5	4
194098	B	B	3	3 4
194099	B	B	4	4
194106	B	B	4 5	5
194325	B	A	4	4
194327	B	A	3	2
194437	B	A	4	4
194438	B	A	3	4 5
194443	B	A	3 4	3 4
194493	B	A	2 3	3
194688	B	B	4	3 4
194908	B	B	4 5	4
194920	B	B	6	6 7
194939	B	B	5	5
195055	B	B	-	6 7
195120	B	B	4 5	5
195121	B	B	5 6	5 6
195158	B	A	4 5	5
195159	B	A	4 5	5
195179	B	B	6	6
195180	B	B	4	4 5
195408	B	B	4	4
195587	B	A	4 5	4 5
195588	B	A	-	2 3
195618	B	A	4 3	4 3
195698	B	B	4 5	4
195703	B	A	-	6
195905	B	B	3 4	3 4
195933	B	B	5	5
195999	B	A	3	3
196092	B	B	2 3	2
196093	B	B	4 5	3 4
196324	B	B	3	3 4

196455	B	B	3	2
196456	B	B	23	2
196557	B	B	3	3
196624	B	A	23	3
196818	B	B	4	34
196819	B	B	4	34
196854	B	B	34	3
196861	B	B	4	4
197072	B	A	-	2 3
197077	B	A	4	45
197199	B	B	5	6
197200	B	B	4	3 4
197390	B	A	23	2
197419	B	A	6 7	6 7
197420	B	B	34	34
197451	B	A	4	4
197453	B	A	3	2
197463	B	B	6	6
197499	B	A	4	4
197500	B	A	23	2
197545	B	A	4	4
197546	B	B	3	3
197583	B	B	5	56
197584	B	B	5	67
197841	B	A	34	3
197983	B	B	23	23
198168	B	A	4	4
198568	B	A	5	45
198611	B	A	2	2
198654	B	B	34	3
198782	B	B	2	2
198821	B	B	43	3