



12. Stress and signs of stress

Stress

- The therapist or patient caregiver:
 - does not consider the cat to be the solution to all of the patient's problems or his or her happiness. Such unrealistic expectations put unnecessary pressure on the cat and can lead to stress.
 - never forces the cat to participate in a session if the cat is clearly reluctant or does not appear to be enjoying the sessions (Delta Society, 2012).
 - always protects the cat. Removes the animal from stressful situations such as incorrect treatment of the cat by the patient (IAHAIO, 2014).
 - ensures that each session ends on time, thus before the cat begins to show signs of stress (Butler, 2004). This is generally equivalent to a time span of 45 minutes, maximum one hour (Lannuzzi et Rowan, 1997).
 - keeps an eye out for any signs of acute stress as well as chronic stress that can be caused by participating too frequently or for too long of periods of AAI sessions (Karatsoreos & McEwen, 2011).
 - avoids unpredictability and loss of control for the cat (e.g. introducing new cats frequently, unpredictable patient reactions..) that can lead to chronic stress.
 - speaks in a calm and quiet tone to calm the cat (Herron & Schreyer, 2014) in slightly stressful situations.
 - avoids punishment or aversive intonations that can lead to stress and aggression (Herron & Schreyer, 2014).
 - avoids sudden and loud noises (although cats approved for AAI sessions should be adapted to this) (Haverbeke et al., 2008).
 - avoids loud and inappropriate behaviour of other people (although cats approved for AAI sessions should be adapted to this) (Delta Society Evaluation Procedure).
 - avoids sudden and rapid movements (Herron & Schreyer, 2014) (although cats approved for AAI sessions should be adapted to this).
 - avoids cuddling the cat (too) strong, avoids long and direct eye contact and approaches the cat sideways instead of walking directly towards the cat (although cats approved for AAI sessions should be adapted to this).
- The cat:
 - The experiences of a kitten in the first weeks of life are crucial for learning how to cope with future stress situations (Foyer et al., 2013). It is recommended to keep kittens at least 14 weeks with the mother cat to avoid future behavioural problems (Ahola, Vapalahti & Lohi, 2017).
 - It is important for the cat to have his or her own resting area (e.g. own room, garden...) that he or she can always access.
 - The cat should always have the opportunity to withdraw from an AAI session.
 - Being taken on the patients' lap can be very stressful for some cats.
 - Classical music has a relaxing effect on cats (Herron & Schreyer, 2014).
 - Bright and/or continuous lighting can be stressful for cats (Herron & Schreyer, 2014).
 - Avoid as much as possible cold and slippery floors (Herron & Schreyer, 2014).



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- The patient:
 - avoids sudden and loud noises (although cats approved for AAI sessions should be adapted to this) (Haverbeke et al., 2008).
 - avoids sudden and rapid movements (Herron & Schreyer, 2014) (although cats approved for AAI sessions should be adapted to this).
 - avoids cuddling the cat (too) strong, avoids long and direct eye contact and approaches the cat sideways instead of walking directly towards the cat (although cats approved for AAI sessions should be adapted to this).
- The cleaning team:
 - limits the use of cleaning or other products that contain alcohol because their strong smell can cause an aversive reaction in cats (Herron & Schreyer, 2014) because they have a much better sense of smell than humans.
- The project manager:
 - Tip: hang up posters in the private rooms, therapy room, waiting room, etc. with the correct way to approach a cat, recognising signs of stress, etc.

Additional guidelines for AAI in hospitals

- It is not advisable to give permission to palliative patients who wish to pass with their own cat with them. This event is too stressful for the cat and there is a great chance the cat will hide under the furniture during the whole goodbye ritual.



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Signs of stress in acute stress situations

List of behaviours

- Increased level of alertness during the resting periods
- Increased tension in the body (muscle tone)
- Dilated pupils
- Eyes wide open
- Urinating and defecating/diarrhoea
- Shaking
- Rapid breathing
- Vocalisations such as hissing, growling or spitting when approaching the cat
- Hiding, flattened or crouching body posture, sitting at the back of the cage
- Tail close to the body
- Flattened ears
- Whiskers pointed backwards

Below is a list of stress-related behaviours cats generally show after an acute stressful situation (e.g. attack from another cat.):

- Self-grooming
- Licking lips or nose
- Scratching with the claws of the hind leg
- Headshaking
- Twitching of the skin over the back





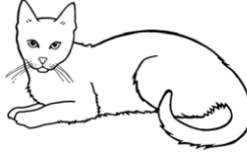

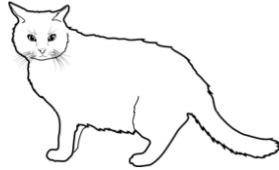

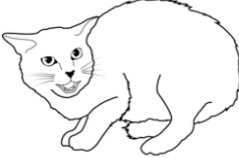

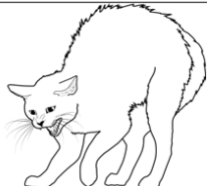

This list of behaviours is based on the following references: Beerda et al., 1997, 2000; Horwitz et Mills, 2009; Pastore, 2011; King et al., 2011; Mc Cobb et al., 2005.



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Stress level scale

The adjusted Cat Stress Score is an easy-to-use tool that - according to the behaviour of the cat - assesses the amount of stress he or she is having.

Score	Body Postures	Head Postures
1 Relaxed	<p>Activity – sleeping or resting, alert or active, may be playing Body – lying on side, on belly or sitting; if standing or moving, back horizontal Breathing – slow to normal Legs – bent, hind legs may be laid out; when standing extended Tail – extended or loosely wrapped; up or loosely down when standing</p> 	<p>Head – laid on surface or over body, some movement Eyes – closed to open, pupils slit to normal size Ears – normal to forward Whiskers – normal to forward Sounds – none, purr</p> 
2 Alert	<p>Activity – resting, awake or actively exploring Body – lying on belly or sitting; if standing or moving the back is horizontal Breathing – normal Legs – bent; when standing extended Tail – on body or curved back; up or tense downwards when standing; may be twitching</p> 	<p>Head – over the body, some movement Eyes – open normally, pupils normal Ears – normal or erected to front or back Whiskers – normal to forward Sounds – none or meow</p> 
3 Tense	<p>Activity – resting or alert, may be actively exploring, trying to escape Body – lying on belly or sitting; if standing or moving the back of the body is lower than the front ("slinking") Breathing – normal Legs – bent, hind legs bent and front legs extended when standing Tail – close to body; tense downwards or curled forward, may be twitching when standing.</p> 	<p>Head – over the body or pressed to body, little or no movement Eyes – wide open or pressed together, pupils normal to partially dilated Ears – erected to front or back Whiskers – normal to forward Sounds – none, meow, or plaintive meow</p> 
4 Anxious	<p>Activity – alert, may be actively trying to escape Body – lying on belly or sitting; if standing or moving the back of the body is lower than the front Breathing – normal or fast Legs – under body, bent when standing Tail – close to the body; may be curled forward close to body when standing. The tip may move up and down or side to side.</p> 	<p>Head – on the plane of the body, little or no movement Eyes – wide open, pupils dilated Ears – partially flattened Whiskers – normal to forward or back Sounds – none, plaintive meow, growling, yowling</p> 
5 Fearful	<p>Activity – motionless, alert or crawling Body – lying on belly or crouched directly on top of all paws, may be shaking; if standing the whole body is near to the ground, may be shaking Breathing – fast Legs – bent; when standing bent near to surface Tail – close to the body; curled forward close to the body when standing.</p> 	<p>Head – near to surface motionless Eyes – fully open, pupils fully dilated Ears – fully flattened Whiskers – back Sounds – none, plaintive meow, growling, yowling</p> 
6 Terrified	<p>Activity – motionless alert Body – crouched directly on top of all paws, shaking. Hair on back and tail bushy. Breathing – fast Legs – stiff or bent to increase apparent size Tail – close to body</p> 	<p>Head – lower than the body Eyes – fully opened, pupils fully dilated Ears – fully flattened, back on head Whiskers – back Sounds – none, plaintive meow, growling, yowling, hissing</p> 



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Signs of stress in chronic stress situations

List of behaviours

If a cat is exposed to stress for a long period of time, he or she can suffer from chronic stress and show the specific behaviours listed below.

It is important to always look at the cat as a whole. It is the combination of different behaviours that make it clear that the cat is suffering from stress, which is often difficult to assess. To help with this, ask yourself the following questions: "Do I see a general change in behaviour in my cat between previously and now?"

- Decrease in exploratory behaviour
- Decrease in social behaviour
- No play behaviour
- Excessive sexual behaviour
- Decrease in food intake (anorexia) or excessive eating
- Frequent vomiting
- Suppressing or, on the contrary, excessive body maintenance behaviour such as grooming, urinating and defecating
- Increase in aggressive behaviour
- Increased sleep pattern
- Passive behaviour
- Decreased variation in behaviours (playing less, not as curious)
- Displacement activity (= an action that has nothing to do with the situation. This behaviour occurs when there is a conflict between two behaviour systems)
- A general increase in hiding in "closed" environments
- Repeated or stereotypical behaviours are not common in cats. We do see an increase of urinary disorders with cats under stress.

This list of behaviours is based on the following references: Beerda et al. 2000; Horwitz and Mills, 2009; Rehnberg et al., 2015.