
ANIMAL PROTECTION
AGAINST SUFFERING

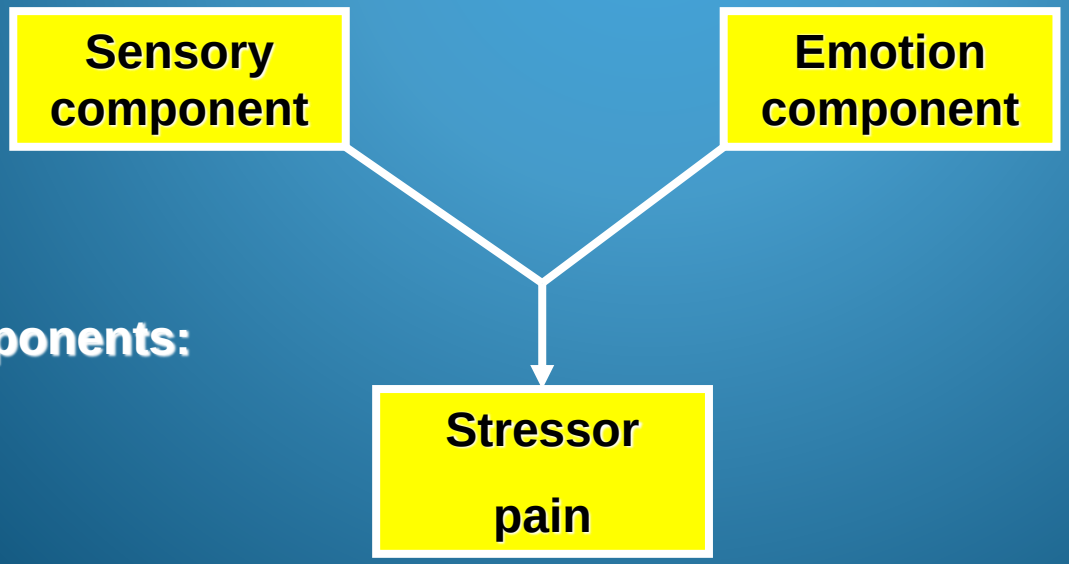
It is man's duty, both moral and legal, to protect animals from pain, illness and death and also from fear.

Pain - definition

is an unpleasant sensory and emotional experience associated with actual or potential tissue damage (Iggo, 1984) - in humans

We cannot interpret pain in other species based on their behaviour alone!

Pain components:



We know how we feel and can get some idea of how others feel from what they do and say, but we can't be sure. The fact that the cat twitched its paw and screeched when it touched the hot kettle - we can conclude that it was well aware of the pain - so we derive it from its behaviour.

Pain must therefore always be seen in direct connection with the perception of fear and stress!

The animal's condition is directly dependent on these factors:

1. An animal with **fear or stress** feels pain much more strongly than an animal that is not afraid.
2. Pain is what is experienced as pain by the patient, not the observer.
3. The anatomical and biochemical pathways of pain transmission in humans and animals are similar. Therefore, it can be concluded that a stimulus that is considered painful in humans and potentially damaging to tissue and causing escape or behavioural changes in the animal, **must also be painful in the animal**.

4. **Suffering** occurs when the pain or inconvenience is so great and of such duration that the situation is no longer tolerable for the individual and their normal behaviour is affected.

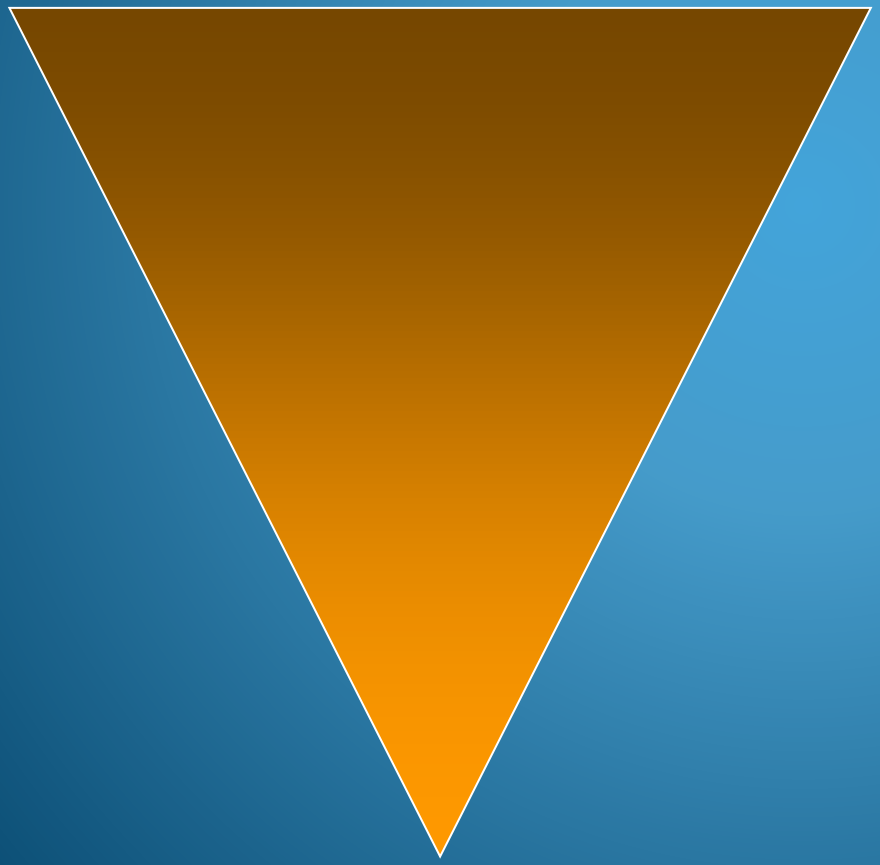
5. Numerous structures of the central nervous system are involved in the processing of pain of the nervous system. **There is no pain proper centre.**

6. The level of pain tolerance varies strongly on an individual and species. It is modulated by motivation or experience.

7. **Tissue sensitivity** plays an important role in pain perception.

Tissue sensitivity plays an important role in pain perception:

Sensitivity to pain



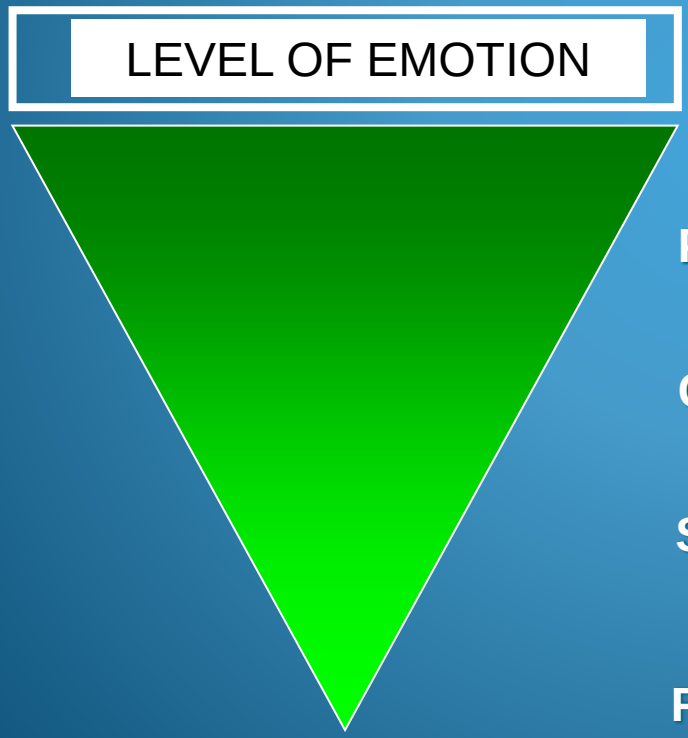
Head (dental pulp and cornea are considered particularly sensitive), chest, anterior abdomen, perineum

Spine, posterior abdominal region, joints

Muscles…

Ethical hierarchy of animals (Henke a Erhardt)

Henke and Erhardt state that it has so far been shown that pain perception in mammals and birds alike, pointing out that the age of the individual play no role. They point out that there is no anatomical or physiological evidence of reason that pain perception in animals should be less than in humans.
The authors argue that the degree of our emotions is the basis for sensitivity to pain that we are willing to grant to any given animal species. They cite the so called - ethical hierarchy of animals.



Pain perception in different animal species (Varner)

Animals can feel pain. A biologist explains how we know. - Vox

	invertebrates			vertebrates			
	insects	molluscs	cephalopods	fishes	snakes	birds	mammals
nociceptors	-	-	?	?	?	+	+
CNS	-	-	+	+	+	+	+
Nociceptors connected with CNS	-	-	+	+	+	+	+
Production of endogenous opioids	+	+	?	?	+	+	+
Response to analgesia	?	-	?	?	?	+	+
Response to pain analogous to human	-	-	+	+	+	+	+

Specific manifestations of pain in animals (Henke a Erdhart)

animals	Specific manifestation of pain
Amphibiants	Wiping itself.
Fishes	Retraction of fins.
Reptiles	Constant twisting.
Birds	Plump up the feathers, change the activity and passivity.
Rodents	Neglected hair coat, contamination of the corners of the eyes, high-pitched squealing (inaudible to humans).
Ruminants	Scraping teeth, kicking under the belly, groaning, placing the limbs under the abdomen.
Rabbit	Squeaking, timidity to the touch, self-harm.
Cat	Escape, aggression, oily fur.
Dog	Head down, the tail is withdrawn, anxiety, disobedience, aggression or apathy.

Options for detecting pain in animals

Behaviour

immediate responses : reflective retraction

vocal expressions, facial expressions

vegetative symptoms : sweating, rapid breathing

protective answers : limitation of mobility, lameness, intolerance to touch

learned answers : aversion, fear

Mood

anxiety, depression - pain response in animals

Pain tolerance

reactions to mechanical and thermal stimuli

Pharmacology

responses to anti-inflammatory drugs

responses to analgesia - administered by man

Stages of pain

- perception of pain at the site of the injury,

- subconscious modulation of pain in the spinal cord and brain trunk

- conscious modulation in the sensory cortex.

Acute and chronic pain

- Acute pain - determined both by the strength of the peripheral stimulus and the number of nerve endings that transmit the stimulus (snout of a pig).

  Acute injury leads to **local inflammation** usually followed by further damage to cell membranes – the reason why pain intensity tends to increase.
- Chronic pain (associated with inflammation) - we can relieve it with anti-inflammatory drugs or, by contrast, by increasing blood flow to remove harmful products of inflammation.

Behavioural indicators for severe pain

- Rapid, shallow breathing
- Violent behaviour when handled
- Rigid posture to immobilize the painful area
- Grinding teeth
- Vocalizations such as bellowing
- Head pressing
- Standing with one hind foot directly in front of the other (suggests acute abdominal pain)

Suppression of pain perception

Humans and animals have an effective ability to inhibit the perception of pain from injuries sustained, for example, in a fight. Basically, it is a matter of the mind focusing on other priorities. This mechanism can also be induced by hypnosis or by ineffective substances, which one might take thinking that they are painkillers. This is achieved in part by stimulating nerve cells to secrete endogenous opiates - morphine-like substances:

Immobilizing the horse with a clip by strangling the sensitive tissue of the upper lip when we want to distract the horse from the painful procedure.

What is pain for?

- To distinguish between harmful and harmless stimuli,
- to make animals prioritize escape from or removal of noxious stimuli at the top,
- to teach animals either to avoid harmful stimuli in the future or to decide what level of pain or harm is acceptable when receiving information or reward,
- to suppress activities that could cause slow recovery from injury.

DISEASE

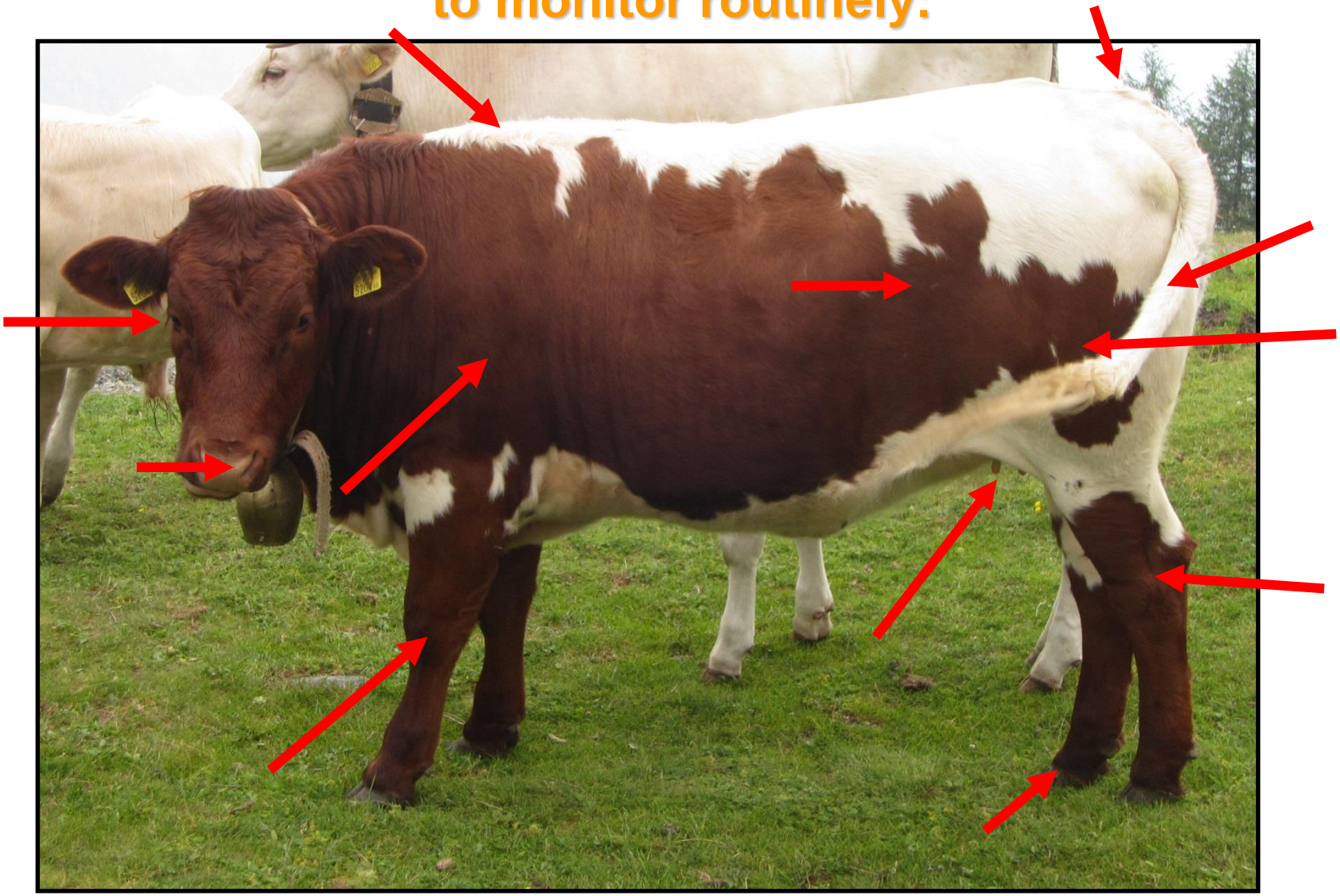
The important question is how the animal feels when it is sick and what to do to make it feel better.

Successful breeder

- it is necessary to be familiar with the basic data on the physiological level of the animal's health,
- was able to recognise the signs of its disturbance in time,
- was able to provide their basic examination and treatment.

Regular animal health inspections are also regulated by legislation!

What areas of the dairy cow's body does the keeper need to monitor routinely:



- **Nostrils - sputum is a symptom of the disease, respiratory rate is monitored**
- **Eye - emits a signal about the state of health of an individual.**
- **Withers - overgrown, rubbed - the result of a low barrier at the feeding table or poor feeding technique.**
- **The tail head - is often the first site of skin parasites.**
- **Hungry hole - for an experienced breeder it is an image of the quality of the diet and the overall health of the cow.**
- **Thigh - its soiling or injury indicates the level of welfare.**

- **Tail and switch - its soiling or injury indicates the level of welfare.**
- **Hoofs – its state of health, injuries, cleanliness, shape, indicates the level of care for animals.**
- **Knee, hock – open, untreated wounds are a sign of unsuitable flooring, management level.**
- **Udder, teats – indicate the occurrence of mastitis (swelling, color) and at the same time care for the herd, postdipping.**
- **Shoulder – bruising or swelling due to impact with box or feed barriers.**

Signs of animal health

- nutritional status,
- behavior,
- level of trias (temperature 38.5 oC , respiratory rate 26-50 breats per minute, pulse between 48-84 beats per minute in cattle)
- condition of skin, coat, visible mucous membranes and conjunctivae,
- genital function,
- musculoskeletal function.

Factors affecting the health of the animal

- External - climate, stable environment, feeding, care, housing technology, movement on pasture,
- Internal - congenital and acquired hereditary features, poor condition.

These factors influence each other.

Healthy animal

The behaviour of a healthy animal is appropriate to the environmental influences. It has a normal posture when resting, getting up and lying down, moving and working.

The exterior corresponds to its utility type, condition and constitution requirements. The skin, soft, elastic without signs of damage, without hair loss, the visible mucous membrane is shiny, smooth, pinkish, without pathological discharges.

The animal eats, drinks, defecates and urinates normally. Respiration, heart rate and body temperature are normal physiological values according to species, age and sex.

Sick animal

- Loss of interest in the environment, apathy, falling behind herd, hunched attitude…
- disinterest in feed, less water intake,
- increase in physiological values,
- increased discharge from eyes, nostrils, rapid breathing, coughing,
- increased temperature in the mammary gland, change in shape, consistency, sensory changes in milk,

- in diseases of the nervous system - the development of chaotic or stereotyped manifestations, nervousness, convulsions,
- manifestations of pain - moaning, grinding of teeth,
- musculoskeletal disorders - aversion to get up, to move, lameness of the animal.

The reasons of the disease:

- Biological causes – caused by microorganisms, parasites,
- Chemical causes - poisoning,
- Physical causes - *high temperature* (overheating, burns…), *low temperature* - cold, light (lightning, strong electric current)- burns, paralysis of nervous system, muscles, *mechanical* - internal and external injuries.

Disease

Disease is considered one of the most important **indicators** of animal well-being because it is in many cases associated with negative experiences **such as pain, discomfort and fear.**

The greatest impact on animal welfare is caused by **acute diseases** causing suffering or the long-term development of disease involving chronic pain.

Therefore, the prevalence and frequency of certain health problems is often used as an indicator to assess the welfare at herd level. The assessment may be based, for example, on clinical examination, on the course of disease in slaughtered animals from the breeder's records or on an interview with the breeder.

The owner of the farm animal together with the vet addresses 2 basic questions:

1. How much I am willing to spend to get animals health back?
2. How much I am willing to spend to reduce the suffering caused to this animal by disease and pain?

Death and dying of animals

Death is caused by **irreversible loss of brain function when:**

- blood supply is cut off because the heart has stopped or arteries have been severed,
- the brain is without oxygen because the animal stops breathing or loses access to oxygen,
- brain cells are poisoned or inactivated (anaesthetic),
- the brain is mechanically destroyed or severely shaken.

People face questions in the context of an animal dying:

- **When is it right to kill an animal and when is it right to let it die or be killed by another animal?**

  With wild animals outside of direct human control it is their problem , not ours, but with domestic animals it is our decision whether to slaughter or euthanize the animal.

- **What methods should we use to kill those animals we choose to kill?**

  When it comes to killing, a quick death is a good death!

Friends and enemies, fear and stress

Animals either live alone or in groups, their personal interests are in conflict with those of other animals competing for the same food source or the same partner.

Animals can distinguish friends usually of the same species - contributing to a sense of security, but also enemies of their own and other species (competitors).

The carnivores look at them as food.

THE FEELING OF FEAR IS ONE OF THE MOST IMPORTANT FEELINGS FOR SURVIVAL!

Conflicts between animals - agonistic behaviour

category	examples
aggression	
threat	rival males, gaining information about rivals
fight	males defending a harem or a place
killing	kanibalism, the bigger chick kills the smaller one in birds of prey
unintentional attack	feather pecking, tail biting
non-aggressive pushing away	competition for food at the trough
mutual avoidance	territorial marking
harassing others	animals obstructing access to feed
handling other animals	cuckoo

The nature of fear

Fear is a conscious intellectual and emotional response to perceived danger that motivates the animal to take actions to avoid the danger if possible.

It is a developmentally influenced experience because the memory holding past dangers, the actions taken in response to them, and their consequences determine whether the experience will be accompanied by more or less fear next time than last time.

In understanding fear, we should not assume that it is felt in the same way as a human!

Situation that scare people

- Fear of the new - strange objects, sudden movements.
- Congenital phobias - of being lonely, of the dark, of snakes, of spiders.
- Fear acquired through experience - in expectation of pain or being made fun ofattacked.
- Signs of fear in others.
- Fear of the future - of being attacked, of old age, of death. It can be assumed that animals do not suffer from fear of the future. They are also spared from the anxiety we feel when we read or hear about disasters.

Stress

Stress - refers to a condition where the animal's well-being is confronted with a problem, but does not indicate the nature of the problem and so provides no indication of how the problem might be addressed.

Often the word stress is used to describe both the **causative factor** (cold) and **its effect** (hypothermia).

Not every exposure to stress causes suffering - animals can adapt their behaviour in such a way as to eliminate or cope with stress.

General Adaptation Syndrome

A characteristic feature of living organisms is adaptation, which allows to ensure the balance of the organism by adapting to external conditions. Stress represents a special kind of adaptive responses that are caused by different kinds of stressors. Stress is necessary and beneficial, it helps adaptations, increases and improves the performance of living systems. **However, it must not exceed the limits of adaptability below and above physiological values.**

The general adaptation syndrome signals to us the animal's well-being is affected by a particular stress, and measures of cortisol concentration in connection with immune system function can indicate the degree of stress, but cannot diagnose what type of stress is involved - whether it is hunger, cold, pain, overcrowding, and therefore cannot tell us how to remove the stress.

Hans Selye introduced the term in the 1930s, studied at Charles University and then worked in Canada.

Hans Selye - used this word to describe common features of animal responses to a wide range of physical or psychological stimuli - stressors.

An animal's response to a stressor is first **alarm**, which develops to **adaptation.**

If the strength or duration exceeds the animal's adaptive capacity, it moves into **the exhaustion phase.**

The alarm reaction mobilizes all reserves in the body to attack or escape, optimizing blood circulation. It consists of a shock and anti-shock phase. In shock, cardiac weakness and depression develop and vasoconstriction, bradycardia and leukopenia occur, plasma glucose and Na+ concentrations decrease and K+ concentration increases.
In anti-shock, adrenaline and noradrenaline levels increase and we observe tachycardia and a rise in blood pressure. If the response to stressors is optimised, this phase becomes adaptation. This phase is characterised by the fact that the stressors are still present, but the organism has mastered the stress. This phase is characterised by thymus and lymph node hypoplasia and adrenal hypertrophy. If the animal has not coped with the stress, it does not gain resistance to it and a stage of exhaustion develops. Cholesterol stores and adrenal cortex are depleted and lead to metabolic collapse and death.
Depending on the duration of the stress response, stress is divided into acute and chronic. The nature of stress is influenced by age, species of animal, sex, breed, time of year... There is also a genetic predisposition. Stress becomes a risk factor for many diseases.

Stressors:

- **physical** – noise, vibration, climatic extremes, heat, cold, atmospheric pressure,
- **chemical** – poisoning, hunger, thirst, inflammation, burns,
- **biological pain stressors** - surgical procedures, fractures, burns, electrical irritation,
- **complex** - exertion, new environment, animal handling, fixation, transportation, illness,
- **emotional** (mental, psychological) - fear, anxiety.

A society of animals of its own species

Literature and law recognize that animals should be given the companionship of animals of their own species in order to carry out their normal behavior (the fourth freedom).

Reasons:

1. reproduction,
2. safety,
3. cooperation, e.g. for food,
4. providing shelter,
5. education,
6. for pleasure.

Reproduction

The motivation for sexual behaviour is primitive and powerful and can overwhelm other strong emotions such as hunger and fear for a time. It is also a source of conflict between animals, especially rival males. It is a potential source of future distress - especially for mothers and offspring who may face overpopulation and starvation.

Safety

Most herd animals need other members of the herd for a sense of security and suffer from fear in isolation. Sheep, for example, try to keep in close contact with the herd, especially when they spot a predator - a sheepdog. Cortisol levels have been shown to increase more in sheep in isolation than by the sight of another sheep being slaughtered. The exception, of course, is the tiger, which is a solitary animal. But man has domesticated animals living in herds, especially cattle, sheep or species living in family communities such as the wolf or dog. Such animals potentially need companionship.

Cooperation

We can consider interspecific cooperation between large herbivores and birds such as herons, redbilled oxpecker. However, this is unconscious cooperation; conscious cooperation is a common behavior in birds, but is very uncommon in mammals - it is limited to humans and a few other species that tend to form large family groups like the New World primates - tamarins and some carnivores - lions, wolves and wild dogs. In all of these cases it is about protecting the family and sharing food. For typical farm animals - cattle, sheep, pigs there is little evidence of cooperation.

Education

One of the main reasons why animals need the presence of other animals of the same species is the need to learn. Young animals learn not only primary skills such as gathering food, hunting, and how to avoid danger, but also social skills that are designed to smooth interactions with other individuals of their own species. The ability to learn from others is one of the most useful indicators of the complexity of their minds. It should be pointed out that animals that have been denied the opportunity to learn and be educated in their youth are more likely to suffer. E.g. lambs orphaned at birth and artificially reared later neglect their own offspring.

Friendship

video

Some animals form and maintain social relationships that have nothing to do with the need to mate and raise offspring, but simply feel good together. For example - horses and especially donkeys form relationships and suffer when these are broken.

THANK YOU FOR ATENTION