NON-LEGAL & UNOFFICAL TRANSLATION FROM FRENCH

At the request of Ms. Julie ASSELIN, mandated by Québec Animal Law Community – DAQ

Expert report in veterinary medicine concerning the calf roping and steer wrestling events of St-TITE Western Festival in QUÉBEC.

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OBJECTIVE: Do calf roping and steer wrestling events affect the health of the calves and steers?

Definition of Animal Sentience:

(Animal pains: Identifying, understanding and limiting them in farm animals; expert report produced by INRA at the request of the Ministry of Food, Agriculture and Fisheries & the Ministry of Higher Education and Research; December 09- France)

Most philosophical theories in animal ethics consider sentience to be the ability to experience pain and pleasure. Insofar as suffering corresponds to an individual's awareness of pain, it is defined by the IASP (International Association for the Study of Pain) as **"a state of emotional distress associated with events that threaten the 'biological or psychological integrity of the individual".** The notion of animal sentience therefore needs to be understood objectively, from a scientific point of view, with regard to domestic animals, in order to:

- identify and understand **animal perception of pain** and its behavioral and physiological expression.
- highlight **animal consciousness** that can produce the experience of emotions

Animal Perception of Pain:

From time immemorial human beings have lived side by side with nonhuman animals, establishing hybrid social relations with them according to how humans viewed their status and usefulness in this hybrid community. A notable example is the human view on animal pain: In the case of family animals their pain was taken into account and even sometimes overestimated, leaving ample scope for anthropomorphism. But in the case of production animals, whose benefit to humans was only material, their pain was considerably underestimated. This ambiguity in the human view of animal pain can only be resolved and made objective through a scientific method of assessment, setting aside ethical or philosophical considerations.

From a scientific point of view, pain is an aversive experience composed of sensory, emotional and cognitive characteristics. Pain performs a warning function to ensure the physical integrity of a subject by triggering biological and behavioral mechanisms of defense or adaptation.The IASP (International Association for the Study of Pain) uses a definition of pain adopted worldwide:

"**Pain is an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage or described in terms of such damage**". With regard to animals, insofar as they do not have the ability to communicate verbally, they are unable to describe the pain they feel, which leads the scientific community to define animal pain as **"an**

aversive sensory and emotional experience represented by the animal's awareness of the rupture or threat of rupture of the integrity of its tissues."

The Cartesian thesis which sees animals as beings devoid of any sensitivity or ability to feel pain is today rejected scientifically, but it still leaves some of its traces in certain circles whose practices would, in order to justify certain activities, dogmatically consider animals unable to feel pain.

It is clear that the neurobiological mechanisms underlying pain allow, in the case of mammals, to consider very broad similarities with humans as part of an evolutionary continuity. Proof of this is that the effectiveness of most human pharmaceutical specialties aimed at fighting pain is evaluated on laboratory mammals in its experimental phase.

We classically distinguish between 3 major types of pain based on their pathophysiological mechanism:

- Acute pain.
- Inflammatory pain.
- Neuropathic pain.

Acute and inflammatory pains are often associated with damage to tissues and can be qualified as pain by excess of nociception [tissue damage detection], whereas neuropathic pain is a so-called "constructed" pain without biological purpose insofar as it does not involve nerve pain receptors directly (e.g. perceived pain from a limb that has been amputated.)

From a chronological point of view the chain of activation of the processes intervening in the nervous system from the peripheral signal to the responses induced by the higher cerebral centers are well known. They constantly bring into play cerebral structures (telencephalons and diencephalons) involved in the processing of emotions, memory and elementary consciousness as well as motor commands. As a result, pain networks intimately link the physiological and psychological spheres of organisms insofar as pain constantly causes:

- Vegetative responses (heart rate, hormonal secretions, etc.)
- Protective motor responses (withdrawal reflex, flight, etc.)
- Complex behavioral strategies (posture, social isolation, etc.)

Through its aversive dimension, pain induces in the individual a ***stress*** reaction, defined as a response to a threatening situation by bringing into play the hormonal system known as the "corticotropic" system as well as what is called the sympathetic nervous system, which results in the production of adrenaline by the adrenal glands. This standardized reaction of various "aggression systems", evokes a unique physiological response, and one that is moreover similar to all mammals.

The Behavioral Signs of Pain

The behavioral manifestations of pain also differ for different species. In general, pain is manifested by the abandonment of certain behaviors called "normal" and the expression of "abnormal" behavior. As a general rule, prey species (eg cattle) have a more reserved way of expressing pain than predatory species (eg domestic carnivores). This behavioral reserve, **which should not be interpreted as a sign of less intensity of perceived pain,** is part of the self-preservation mechanism in prey species; it would increase their vulnerability to their predators if they expressed signs of pain such as vocalizations that would make them more easily identifiable by their predators.

It is important, especially in the case of cattle, to take into account the problem of learned helplessness. Receiving repeated painful stimuli, with no way to avoid them, causes a reduction in behavior aimed at protecting the recipient from pain; from a behavioral point of view it is as if the animal “gave up the fight”. This observation can lead to the erroneous conclusion that the animal is not suffering. Moreover, in cattle, the suppressed signs of pain can also mask the signs of fear and anxiety; this leads to an almost systematic underestimation of the pain perceived by these animals in the context of certain rearing practices.

Animal Sensory Consciousness

(Collective scientifique expertise - Institut National des Recherches Agronomique INRA ; mai 07-France).

As a preamble, in order to avoid any semantic ambiguity in the interpretation of the term consciousness in this report, it should be made explicit that this term refers to the sense of* sensory *consciousness, from a neurophysiological point of view this sense is limited to the level of vigilance in the waking state. This is precisely the sense of consciousness that makes it possible to perceive the outside world as well as the sensations coming from the organism itself. The less rational concept of “reflective consciousness” or “self-awareness” calling for subjective interpretation does not apply to this report.

As of the 19th century, secular philosophical reflections on animal consciousness became enriched and gradually gave way to scientific methods for defining animal consciousness. It is in the light of such objective conclusions that each societal group must, according to its own history and its philosophical perceptions, assess certain practices towards animals and not the reverse. It is totally unfounded to want to draw objective scientific conclusions by basing one's reasoning on beliefs or any other dogmatic philosophical consideration.

The protection of animal welfare enshrined in the BÊSA Act requires taking an interest in the mental life of animals in order to define the scope of practices that ensure respect for their well-being.

Animal consciousness can be defined as animals' subjective or phenomenal experience of their environment, their own body, and their own knowledge. The parallel of animal consciousness with that of humans is aptly summed up in the Cambridge Declaration on Consciousness, which states there is "convergence evidence indicates that non-human animals have the neuroanatomical, neurochemical and neurophysiological substrates of conscious states along with the capacity to exhibit intentional behaviors...".

The main difference between animal consciousness and human consciousness is most certainly in their respective tools for communicating their states of consciousness. Although animals do not have a capacity for verbal language as sophisticated as that of humans, they share other forms of non-verbal communication from which it is possible to infer various potential states of consciousness objectively.

The study of consciousness involves distinguishing between two major notions defined as the **level of consciousness** and the **content of consciousness**.
The level of consciousness refers to states of vigilance ranging from coma to wakefulness whereas the content of consciousness concerns the perception of internal and external sensory information, as influenced by cognitive processes. The level of consciousness is obviously linked to the content of consciousness. All scientific studies on consciousness, based on experiments comparing behavioral responses to stimuli and measures of the associated neural response, conclude that consciousness results from interactions between different cerebral neural structures.

Scientific studies carried out on animal consciousness show that animals manifest and store in particular:

- **Emotional stimuli** defined as "modulators" of cognitive abilities. The animal will react to the events to which it is exposed by trying to minimize the negative stimuli (fear, discomfort, …) and by seeking positive stimuli (pleasure, comfort, …) *(Emotions and cognition: an original approach to study the emotions in animal - Alain BOISSY - Bull. Acad. Vét. France 2005.)*

- **Social behavior** that does not limit itself to automatic reactions to the behavior of others but uses past and current social experience to adjust behavior using sophisticated means of perception, integration, planning and communication related to sensory awareness. Regarding the relationship between animals and humans, scientific studies show that different people are perceived differently by animals. Animals accordingly express appropriate, predictable and consistent emotional and behavioral responses ranging from avoidance to bonding. (*Animal behavior. Introduction to its observation in cattle. Luc Mounier; The New Veterinary Practitioner Elevages et Sante, 2009)*

In line with the theory of evolution and the irrepressible need of animals (including humans) to ensure the survival of the species, there is reason to suppose that consciousness provides, among other things, a competitive advantage, making possible responses that are adapted to the different challenges encountered by animals.

Conclusions:

Animals are beings endowed with sentience. This is expressed through their capacity for sensory consciousness, which allows them to have access to emotional stimuli. Animal suffering results from the ability to feel pain, whether physical and/or psychological. From the observation of animal sentience there follows the notion of animal well-being, which in turn calls for taking into account and respecting animals' needs:

- **Elementary physiological needs (food & water).**
- **Environmental needs such as comfort.**
- **Sanitary & physical needs (avoiding illnesses and injuries and thus avoiding pain).**
- **Behavioral & psychological needs (avoiding fear and anxiety and allowing the expression of behavioral repertoire of the species).**

Definition of Animal Health:

*(*Animal health and welfare: equivalence or complementarity? B. Nicks & M. Vandenheede, Scientific and Technical Review (International Office of Epizootics), 2014)

The definition of health is a complex notion that brings together a multitude of parameters. Our notion of animal health is grounded in well-supported notions in human health. Health is defined by WHO as "a state of complete physical, mental and social well-being and not the absence of disease or infirmity". From this definition arise 3 main axes of reflection:

- The notion of well-being is intimately linked to the definition of health.
- Health is more than the absence of disease or infirmity.
- Can we transpose this definition to animals in terms of their mental state, which is more difficult to assess?

The notions of health and well-being are global ones inherent in many concerns whether they are applied to humans or animals. **The notions of health and well-being are so closely linked that they define a concept called "One Health"**, which is taken into consideration by all the key organizations in the field of health such as the WHO (World Health Organization), OIE (World Organization for Animal Health), UNICEF (United Nations Children's Fund), FAO (Food and Agriculture Organization of the United Nations).

The scientific studies centered on health today no longer allow us to consider well-being to be a superfluous notion, one that is not essential to health to present an acceptable state of health. Animal welfare is a state of dynamic equilibrium between the animal and its environment; one that allows animals to protect themselves from deteriorating health as long as their efforts to maintain or regain this dynamic equilibrium do not exceed their ability to adapt because of physical and/or mental suffering (Rev. sci. tech. Off. int. Epiz., 2014, 33 (1), 91-96).

In this respect, the notion of biological needs -- as defined by [Quebec's] BÊSA law, which was itself directly and pertinently inspired by the definition of health by WHO [the World Health Organisation] -- defines the scope of animal health in considering physical, physiological as well as behavioral needs to be essential.
It is therefore logical that the application of major principles recognized as the "five fundamental freedoms of animals" set out by the OIE make it possible to guarantee animal health.

- o Freedom from hunger, thirst and malnutrition.
- o Freedom from fear and distress.
- o Freedom from physical and thermal discomfort.
- o Freedom from pain, injury and disease.
- o Freedom to express normal patterns of behavior.

Calf-roping and steer-wrestling in rodeos contravene all the OIE items that define respect for the biological needs of animals other than the one concerning nutritional needs.

In the rodeo these animals are subjected to a situation that systematically causes pain accompanied by lesions in a particularly anxiety-provoking context -- one in which due the nature of the event causes the animal to flee in order to highlight the technical skills of a cowboy.

The notion of animal stress takes into account the multiple factors that define the animal's biological needs. This makes it possible to approach these needs in a more global way.

The term "stress" has been widely used in biology to describe a set of physiological changes (among which the hypothalamic-pituitary axis plays a key role) and behaviors resulting from an aversive stimulus. It is important to note that the negative health consequences of an aversive stimulus such as a painful experience depend largely on the animal's ability to anticipate this type of event -- and above all to control it. Animal stress has to be seen as the result of subjecting an animal to a situation that exceeds the animal's capacity to cope.
(Animal pain: Identifying, understanding and limiting it in farm animals; expert report produced by INRA at the request of the Ministry of Food, Agriculture and Fisheries & the Ministry of Higher Education and Research; December 19- France)

Stressors are divided into:

- Physical factors.
- Social factors (between individuals of the same species).
- Factors related to husbandry practices.

These different factors have an additive effect on the animal; the magnitude of the responses to stress is directly proportional to the sum and the intensity of the stressors to which the individual is subjected. For example, combining (1) weaning with (2) transport is especially more stressful than one or the other separately.

With regard to calf-roping and steer-wrestling, these rodeo events systematically exceed the capacities of the animal to control them. For the purpose of testing the skills of a cowboy, the animal is subjected to a succession of aversive manipulations which are imposed on it outside of any context of learning. From being separated from their conspecifics to being restrained by cervical torsion or strangulation, it is precisely the animal's inability to escape these manipulations that is exploited by each event. A possibility of learning how to escape or avoid this treatment is not what the contest is about for the calf or the steer. The contest is about the ability of the cowboy in completing his exercise.

The impact of stress on animal health is now fully demonstrated through studies which formally conclude, among other things, that stress has an inhibiting effect on:

- The immune functions of the animal, who will as a result have increased susceptibility to diseases.
- Fertility.

- Rumination and ingestion capacities of animals.

(Stress in farm animals: concept and effects on production, D.Temple, E.Mainau, X.Manteca. FAWEC, April 13)

A recent scientific study (Behavioral and Physiological Responses of Calves to Marshalling and Roping in a Simulated Rodeo Event, 2016) has made it possible to measure the physiological response of calves subjected to roping events by measuring changes in the levels of the stress hormones cortisol, adrenaline and noradrenaline. All three are involved in the body's attempts to respond to an aversive situation by causing, among other things, an increase in heart rate, dilation of the coronary arteries, an increase in blood sugar,… Changes in blood levels of adrenaline and noradrenaline have also been used in other studies to measure the levels of acute stress in cattle so as to optimize the process of slaughter. *(Changes in blood parameters and electroencephalogram of cattle affected by different methods of stunning and slaughter in cattle. Anim. Prod. Sci. 2014, 54, 187–193.)*

Apart from the rise in stress hormones during the rodeo trials as well as of behaviors considered as markers of stress such as vocalizations or a systematic exposure of the white of the eye during capture, it appears that repeated participation in rodeo events does not substantially reduce the intensity of the stress undergone by the calves.

In fact, the adrenaline levels of the calves before the opening of the chute towards the arena is just as high whether or not they have previously participated in calf-roping events at all. This last finding confirms the total absence of any habituation or learning in rodeo calf-roping events (unlike in the case of horses used in riding).

Conclusions:

It is no longer scientifically possible to isolate the notion of animal welfare from the more general concept of health. Scientific progress shows that animal health is not limited to the absence of physical pathology, given the cognitive and emotional complexity now demonstrated in animals. Any aversive experience contravenes animal welfare and therefore affects the health of the individual who is subjected to it.

Do the calf-roping events affect -- or can they affect -- the health of calves? (If so, comment on and specify this possible effect, the moment when it takes place during the course of the event, as well as its effects on the animal.)

Description of the calf-roping events:

A calf weighing between 225 (102kg) and 275 pounds (125kg) is held in an enclosure next to which a rider is waiting to chase the calf.

At the same time the calf is released, it is pursued by the rider who tries to throw a lasso around its neck as it is running away at full speed. When the throw is successful, the calf's running is abruptly cut off by the halting or the rider's horse. The rider then rushes to the calf in order to throw it to the ground and keep it lying on its side, the lasso still in place, and binds its three legs with a cord. The test is validated if the animal remains bound like this for 5 seconds without any further human intervention. Following these five seconds, the calf is freed by releasing the lasso and removing the leg bindings.

Objectively, such a practice exposes the animal in a sure and systematic way to a series of stages affecting the health of the animal due to the following:

1. **Being placed into a situation of behavioral distress involving:**

   a. Separation of the calf from its conspecifics (other calves).

   b. Restraint in a cage in an environment that does not allow the calf to express its normal species-specific behaviors.

   c. Immobilization by strangulation.

   d. Absence of means of escape from the stressful event, preventing any control of the situation by the animal.

In this respect, it is relevant to note that the regulations of the IPRA (International Professional Rodeo Association) under which the Rodeo of St-TITE is organized comments:

- The repetitiveness of the roping sessions for the calves ("The calves must be prepared, meaning that they must be roped and tied at least two to three times before the rodeo").

2. **Practices causing acute pain related to strangulation which, together with an environmental context of stress described previously, propels the animal towards a state of suffering.**

The signs of pain and injuries are consubstantial with the practice of calf roping. The calf is subjected to extremely violent strangulation insofar as its running speed is suddenly stopped by

the lasso, which is fitted with a tightening slip knot, then attached to the participant's horse to stop the calf in its tracks that is trying to escape.

According to the elementary rules of physical mechanics, any moving body has a kinetic energy directly proportional to its weight and to the square of its speed according to the following formula:

Kinetic Energy = ½ X Mass X Velocity^2

During a sudden stop or a shock, this kinetic energy must be dissipated by deforming the parts of this body in contact with the point of shock or impact. In the case of the calf-roping. this point of impact is its cervical region [neck] on which the pressure of the lasso is exerted.

Considering an average weight of 113 kg (250 pounds) and a running speed of 4 meters/seconds (9 Mph), a calf has a kinetic energy of 855 Joules then transmitted to the cervical region when stopped by strangulation. **This brutal transfer of energy is almost equivalent to that required to lift a mass of 200 pounds (90 kg) to a height of 1 meter.**

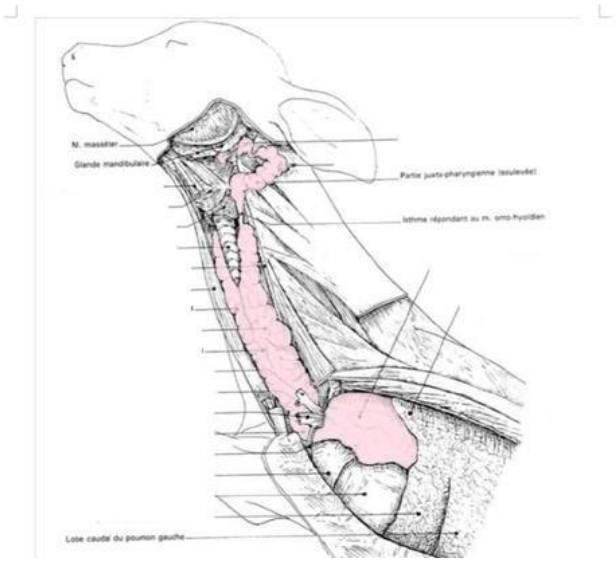
It is therefore not surprising that the practice of calf-roping causes significant injuries to the tissues of the cervical region.

These lesions were brought to light in a 1974 experimental study (a special report on rodeo, Humane Society Institute for Science and Policy, 1974) where 3 calves were subjected to a macro anatomo-pathological examination and microscopic immediately after a roping session by a professional cowboy.

The 1st subject was captured once before being euthanized, the 2nd subject was subjected to 4 consecutive lasso capture sessions before being euthanized. A 3rd subject called “control” also underwent the same examination in the absence of a prior capture session.

Observations made on animals captured by lasso reveal the following lesions:

- Ecchymosis of the subcutaneous tissues in the cervical region and shoulders.
- Tracheal bruising.
- Hemorrhage of the thymus.
- Lesions of the tracheal cartilage



These lesions attest to a significant inflammatory phenomenon constantly associated with a perception of pain for the animal in the region concerned, given the significant innervation of the injured areas and the development of the thymus in the calf (in pink on the plate above).

The illustration of these findings is presented in a non-exhaustive way below by highlighting:

- **The importance of strangulation (burying the lasso in the integument)**

Prise de veau au lasso. 16 septembre 2017-Sortie 3, veau 15

16 septembre 2017-Sortie 4, veau 13

16 septembre 2017 Sortie 5, veau 1718

16 septembre 2017 Sortie 4, veau 1730

13 septembre 2017-Sortie 4, veau 21

15 septembre 2017-Sortie 2, veau 14

10 septembre 2017-Sortie 15, veau 13

- **Evidence of cough and/or respiratory distress following strangulation (visible on the corresponding videos):**

16 septembre 2017 Sortie 5, veau 1718

15 septembre 2017-Sortie 2, veau 14

13 septembre 2017-Sortie 4, veau 21

- **Dragging of the calf by strangulation following a failure to stop the horse moving backward disqualifying the competitor (trace on the ground visible, particularly clear on video).**

16 septembre 2017, Sortie 9, veau 1724

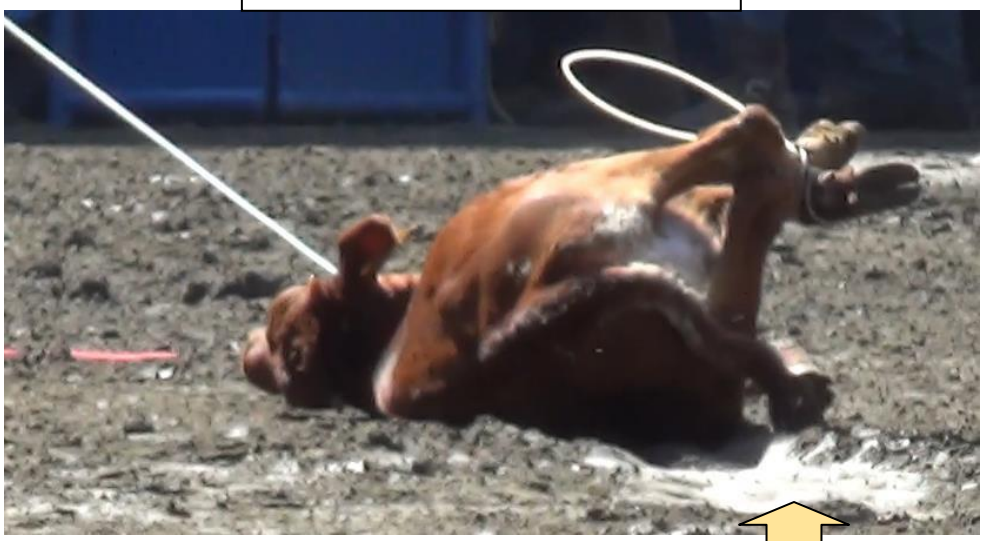
16 septembre 2017-Sortie 12, veau 15

10 septembre 2017-Sortie 8, veau 1716

10 septembre 2017-Sortie 6, veau 1707

9 septembre 2017-Sortie 1, veau 4

9 septembre 2017-Sortie 7, Veau 14



Trace de recul

9 septembre 2017-Sortie 14, veau 9

- **Ocular lesions from unsuccessful roping attempt**

16 septembre 2017-Sortie 1, veau 13

10 septembre 2017-Sortie 18, veau 24

- **Systematic rapid and violent throwing of calves to the ground.**

16 septembre 2017-Sortie 5, veau 1718

16 septembre 2017-Sortie 9, veau 1724

16 septembre 2017-Sortie 4, veau 1730

13 septembre 2017-Sortie 4, veau 21

- **Extreme hyperflexion of the cervix**

16 septembre 2017-Sortie 12, veau 15

13 septembre 2017-Sortie 2, veau 1722

Can or does steer wrestling affect the health of steers?

Description of the event:

A steer with a minimum weight of 450 pounds (200 kg) is kept in an enclosure next to which 2 riders are waiting to pursue it.

At the same moment the enclosure is opened, releasing the steer, the latter is pursued by the 2 riders on either side of the steer to constrain its path.

In the middle of the pursuit, one of the 2 riders jumps onto the steer from his horse. The steer is then brought down by twisting the neck so that it ends up lying in the *lateral decubitus* position. The event ends when the animal is brought to the ground with the 4 legs visible in the same direction as the head.

Objectively, such a practice exposes the animal in a defined and systematic way to a to a series of actions affecting the health of the animal due to the following:

1. Being placed into a situation of behavioral distress involving:

a. The separation of the steer from its conspecifics (other steer).

b. Restraint in a cage in an environment that does not allow it to express the normal behaviors associated with its species (e.g. release video n°6 of steer n°126 of September 14, 2017 shows an animal trying in vain to escape restraint).

c. Immobilization by hyper rotation of the neck around its axis.

d. Absence of possibility of escape from the stressful event, preventing any control of the situation by the animal.

In this respect, it is relevant to note that the regulations of the IPRA (International Professional Rodeo Association) under which the Rodeo of St-TITE is organized mentions:

- Repeated steer-wrestling trials for steers: the same cattle can be used several times in the same rodeo, running the same risks during each exercise over a long period of up to one year (“Steers may not be used for wrestling for more than twelve consecutive months, unless a waiver is given by the Event Director.” IPRA Rules).

2. Practices causing acute pain related to strangulation -- pain that is associated with an environmental context of stress, described earlier, which induces a state of suffering in the animal.

The signs of pain and of injuries are inseparable from the practice of steer-wrestling. The steer is subjected to an extremely violent non-physiological hyper rotation. Indeed, the method allowing it to be brought to the grounds in an obvious context of imbalance of weight between the cowboy and the steer is based on the use of a lever arm (horns & muzzle) enabling the cowboy to impose a cervical torsion around its axis which, when it exceeds the animal's physiological capacities, makes it lose balance by forcing the cervical spine into a torsion stop thereby making a 450-pound (200 kg) animal fall.

9 septembre 17, bouvillon 23, sortie 13

9 septembre 2017, Sortie 15, bouvillon 24

10 septembre 2017, Sortie 2, bouvillon 69

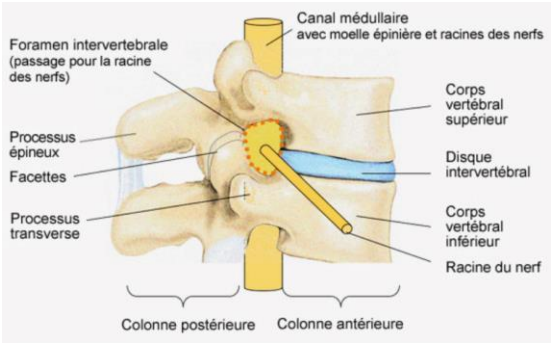
10 septembre 2017, Sortie 5, bouvillon 296

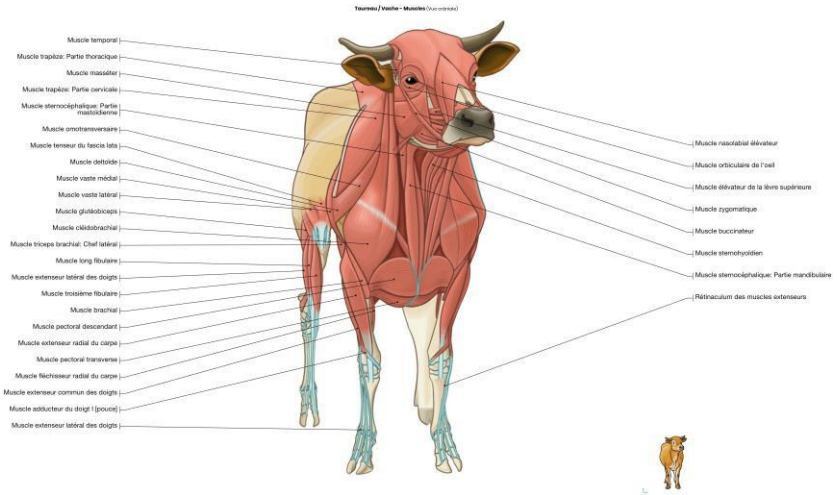
10 septembre 2017 Sortie 5, bouvillon 296

Hence it is not surprising that the practice of wrestling steers causes significant lesions of the tissues of the cervical region such as:

- An elongation that can lead to a tear in the neck muscles ending on the head such as the sterno-hyoid & sterno-cephalic in its mastoid part.

- Cervical enthesiopathies associated with nerve damage arising from the anatomy of the cervical spine.





CONCLUSIONS :

Independent of the measures taken to ensure animal well-being in the conditions of accommodation and transport, the calf-roping and steer-wrestling events within the framework of the rodeo, do systematic damage to their health through:

- Treatment in which the animals are systematically exposed to methods of restraint and violent handling (throwing to the ground by cervical twisting, restraint by strangulation with a lasso) which are particularly stressful and lead to a state of animal distress.

- Systematic exposure to acute pain that leads to a state of suffering defined by the aversive awareness of pain given the cognitive capacities of cattle.

It is evident that in cattle, given their minimal overt expression of pain even though it is nevertheless intensely felt, and the few external signs of lesions, it would be wrong to conclude that this type of treatment is not harmful to animal well-being.

These observations were fully confirmed firsthand during a trip to RICHTON (MISSISSIPPI, USA) where I was able to attend a rodeo organized under the auspices of the International Professional Rodeo Association on December 3, 2021.

Even if rodeos can be considered as displays of skill in handling cattle in the pasture, in the context of the brief and necessary provision of care requiring rapid restraint, it is undeniable, except on pain of abandoning all critical and factual analysis, that such practices, when diverted from their essential function in the pasture to a recreational context, harm the health of the animals on whom they are inflicted.

This report is filed at HERICOURT-EN-CAUX, on 20/12/21

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