

Introduction

Causing pain and distress in animals is an ethically serious matter, particularly when it is done in the name of entertainment. This study aims to provide a method for identifying and quantifying the distress experienced by bulls during bullfights, utilizing established observational methodologies for evaluating distress in bovines and other animals.

This report applies a distress scale, which includes evaluations of behaviors that are indicative of pain, to review activities which are of concern from an animal welfare standpoint. Specifically, the distress scale is used as a way to quantify the distress experienced by bulls in the bullfighting arena through behavioral observation from twenty eight bullfights in six different locations in Spain.

The objectives of this study are to:

- Provide repeatable scientific evidence that bulls experience distress, and therefore suffer, in the bullfighting arena.
- Raise ethical concerns about this suffering.
- Promote the merits of the methodology used to assess the distress bulls experience in the bullfighting arena.

Anatomy of a Bullfight

Bullfighting is a staged spectacle which takes place in Spain and a number of other countries in Europe and Latin America. During a typical Spanish bullfight, the bull is subjected to a series of suertes or "acts" over a period of approximately 10 to 20 minutes. Each is designed to weaken the bull in preparation for his death at the hand of the matador.

Suerte de Varas — "Act of the Lances"

As soon as the bull enters the ring and has been led through a series of passes with the cape to prod the bull to charge (image 1), he is subjected to the suerte de varas — the "act of the lances" (image 2). While usually on a horse, the picador — the lancer — uses the point of the lance, which is a sharp pointed instrument, divided into two sections: a pyramid-shaped point and the rest a bonded steel rope. This instrument is designed to wound certain muscles and ligaments in the mound of musculature at the top of the bull's neck. The aim of this act is to facilitate the work of the bullfighter in that it tires the animal and, once the lance has been inserted, the bull will be less able to lift his head.

Banderillas — "Little Flags"

The next act is the banderillas — "little flags" (Image 3). This involves six barbed wooden sticks with a 6 cm long steel point, including a 16 mm wide harpoon to ensure the barb remains in place, being thrust into the dorsal area of the bull two at a time by the banderilleros while he is on the run.

Matador — "Killer"

Next begins the work of the matador using a muleta, a stick with a cloth cape, typically red in color, hanging from it, and a small light-weight sword rolled into the upper part of the cape. A series of passes with the muleta are made to attract the bull (Image 4).

When the time comes for the kill, the matador replaces the muleta with the estocada (thrust), an 80 cm long curved sword. The goal is to thrust the estocada into an exact spot between the shoulder blades to sever the caudal vena cava of the heart and other major vessels in the chest cavity, intending to cause the death of the bull in a matter of seconds ("clean kill"). In reality, the bull typically does not die quickly and several "thrusts" are required and/or numerous stabblings with the descabello before the bull finally succumbs (Image 5).

Ending: Descabello — "Pithing" and Puntilla — "Lace"

The bullfight ends with the puntilla and sometimes prior to the puntilla, the descabello. The descabello (Image 6), is carried out with a sword similar to the one used for the estocada but with a 10 cm crosspiece. It is designed to sever the spinal cord at the intervertebral space between the first and second cervical vertebrae (Image 7). The puntilla (Image 8), carried out with a 10 cm knife, is the "coup de grace." The intent is to ensure the final death of the bull by severing the medulla oblongata (brainstem) which controls respiration, circulation, and other bodily functions (Image 9).

(Special thanks to Dr. José Enrique Zaldívar Laguna for his contribution to this section)

Materials and Methods

Videos compiled from twenty eight bullfights in six different locations were reviewed by three veterinarians independently for the purposes of this report. Behavioral observations using the "Bullfighting Distress Scale" from Table 1 were used to quantitatively evaluate the distress the bulls experienced in the bullfighting arena.

Video Locations and Dates:

Guadalajara, Spain: September 19, 2010
Logrono, Spain: September 21 and 22, 2010
Seville, Spain: September 24 and 25, 2010
San Fernando, Spain: September 28, 2010
Arnedo, Spain: September 28, 2010
Madrid, Spain: September 30 and October 1, 2010

Bullfighting Distress Scale

A variable rating scale was developed to assess distress exhibited by bulls during a bullfight. The categories that were considered for the rating scale, chosen as indicators of distress supported by scientific literature, were:

- Vocalization
- Breathing
- Locomotion
- Body posture
- Physical signs of injury
- Defecations
- Gait

Vocalization was not included in the distress scale because the crowd noise and background music during the bullfight made it too difficult to consistently hear the bulls. Defecation was also not included because bulls used for bullfighting are usually fed only straw, or nothing at all, once they leave the ranch for the bullring. This prevents the bulls from defecating and staining the sand in the arena with feces.

The specific descriptors were selected as behavioral indicators demonstrated by bulls in the bullfighting arena for each category. Based on input from veterinary experts, a numerical score was given each descriptor portraying the progressive characteristics of distress within each category.

The start and finish time for individual variables (i.e., descriptors) were recorded, bearing in mind that some descriptors can occur several times, and that different descriptors often occur simultaneously. Each descriptor was given a numerical weighting ranging from 0 for no distress to 10 for the worst level of distress possible, in order to calculate the final score (see Table 1).



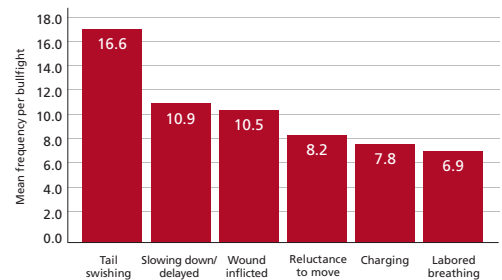
TABLE 1: BULLFIGHTING DISTRESS SCALE

Category	Descriptor	Score	Length of Time	Total Score	Comments	
BREATHING	Normal breathing	0				
	Elevated (faster) breathing	2				
	Labored breathing	4				
	Open mouth breathing	5				
	Open mouth breathing with tongue hanging out	6				
	LOCOMOTION	Normal mobility	0			
Charging		4				
Retreating away from the matador		5				
Slowing down/Delayed motion		6				
Reluctance to move		8				
Difficulty moving/Stumbling/Oriented		9				
BODY POSTURE	Normal posture	0				
	Ear flicking	1				
	Head movements	1				
	Tail swishing	2				
	Foot stomping	4				
	Tail tucked	5				
	Head drooping (not charging)	7				
	Teeth grinding	8				
	PHYSICAL SIGNS OF INJURY	No signs of injury	0			
		Wound inflicted on bull	6			
Bleeding from skin		7				
Massive bleeding from skin		9				
Bleeding from nose and/or mouth		9				
GAIT	Normal gait	0				
	Weight bearing lameness	4				
	Non-weight bearing lameness	8				

Initial Statistical Analysis

Below are the initial statistics that have been gathered for the study. Further observations are still being collected in order to assert both validity and reliability of the data. Furthermore, not all signs of distress have been documented, as the camera was not always on the bull. Therefore, the frequency and duration of observed distress in each video is likely underestimated.

TOP SIX MOST FREQUENTLY OBSERVED CHARACTERISTICS (28 FIGHTS):



- The average fight duration was 9.46 minutes in length.
- Open-mouth breathing was observed 117 times (an average of 4.2 times per fight), indicating significant exhaustion in the animal.
- "Slowing down" and "reluctance to move" were observed more frequently than "charging." Indicating the bulls' distress and fatigue impacted their behavior more frequently than their urge to charge at the matador or other people or animals in the ring.
- Tail swishing was the most frequently observed descriptor, and was seen in all of the 28 fights.
- Deliberate wounding of bulls was observed a total of 294 times (an average of 10.5 times per fight).
- Bulls made contact with horses 74 times among 28 observed fights, suggesting distress in the horses as well.

Initial Conclusions

The frequency with which bulls during bullfights exhibit behaviors identified as indicators of distress, suggest that fighting bulls experience distress — they suffer in the bull ring.

The behaviors they exhibit as a result resemble those demonstrated by other distressed bovines. This raises serious ethical concerns about whether bullfighting can be justified, particularly given that the activity is conducted solely to provide a spectacle for the purposes of entertainment.

The manner and length in which the animals suffer in bullfighting (both the bulls and the horses) cannot be deemed humane. Further data collection and analysis is planned in order to establish the statistical repeatability of the distress scale.