

## **PREDISPOSING FACTORS AND AFFECTIONS LEADING TO MERCY KILLING IN EQUINE**

By

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### **ABSTRACT**

The present study was carried out on 358 working horses, donkeys and mules in El-Qalyubia, Cairo and Giza governorates in Egypt (area of study). They were suffering from incurable critical injuries and euthanasia is a must decision. The study aimed to investigate the need of euthanasia in relation to species, age, sex, type of work, and causes of the affection. Male gender of equine at the age 5 to 15 years were prone to euthanasia. Horses were the most recorded species (2%) that reached to euthanasia. The most prevalent cause of euthanasia in horses was fractures (48.8%). Euthanasia in donkeys represented (0.23%). The most prevalent cause of euthanasia in donkeys was fractures (27.6%). The percentage of euthanasia in mules was the least percentage (0.19%) and fractures in mules were also the main affection that led to euthanasia (66.7%). Moreover, draught work was the most common cause that led to euthanasia with the following percentages 100%, 80.9% and 67.7% in mules, donkeys and horses respectively. Such results prove the need of welfare to working equine in Egypt, also it is useful for the owners to avoid causes leading to euthanasia and for veterinarians to decide the correct time for equine euthanasia or to say goodbye.

### **Keywords:**

Euthanasia, equine (horses, donkeys and mules), welfare.

### **INTRODUCTION**

Euthanasia is derived from the Greek terms *eu* meaning good and *thanatos* meaning death. The term is used to describe ending the life of an individual animal in a way that minimizes or eliminates pain and distress. A good death is tantamount to the humane termination of an animal's life (AVMA, 2013). There are 112 million working equine (58.5 million horses, 43 million donkeys and 10.5 million mules) in the developing world (FAOSTAT, 2011). Over

95% of donkeys and mules and 60% of horses are present in developing countries (**Fielding, 1991**) and the majority of them are working animals. It has been suggested that more than half of the world's population depends on animal power as main energy source (**Wilson, 2003**). Working equine in both urban and rural areas of developing countries are the most important source of agricultural energy and transport (**Biffa and Woldemeskel 2006**). Although equine is the lifeline of most farmers, they have been subjected to various problems such as lack of awareness, cruelty and poverty (**Svendson, 1997**), long working hours and insufficient food (**Alujia, 1998**) that lead to negative effects on the health and welfare of working equine. Equine in the developing countries are prone to a number of diseases due to minimum management attention that have. Most of these equine stay with pain and suffering from a problem until they die (**Ayele et al., 2006**). The present study was designed to reach to the predisposing factors and reasons of equine euthanasia in Egypt.

## MATERIAL AND METHODS

The present study was conducted in three governorates in Egypt including EL-Qalyubia, Cairo and Giza. Greet population of equine is found in them and take part in many daily activities. People there rely on equine for transportation, transporting crops, fuel, wood, water, building materials and people on their back trip from farms and/or markets to home. Also equine are used in agricultural operations in rural parts and tourism industry in pyramids. Those animals are subjected to different dangerous injuries and road accidents. Euthanasia is common in those areas because of the presence of many non-governmental organizations (NGOs) of animal welfare and veterinary research center. In the area of the present study about 99136 donkeys, 3032 mules and 6460 horses are present (General organization of veterinary service, 2015).

## THE STUDY DESIGN

The present study was carried out on 225 donkeys, 6 mules and 127 horses suffering from critical injuries that led to euthanasia. The study was conducted during the period from April, 2015 to March, 2016. The animals' identification, species, age and sex were recorded. In addition to general condition, type of management and work were recorded. In the meantime, the affections leading to euthanasia were recorded. Such data were discussed with the non-governmental organizations (NGOs) including the Egyptian society for protection and welfare of working animals (ESPWWA), the Egyptian equine aid, the rural wellness initiative (RWI),

Brooke hospital for animals, veterinary clinics for equine, equine stables and veterinary research centers in El-Qalyubia and Giza governorates.

**Data analysis:**

All the collected raw data during the study were entered into Microsoft Excel data sheet (excel software version 2016) and then analyzed as a percentage.

**RESULTS**

**Percentage of the euthanasia in working equine according to the species in the area of the study:**

The overall equine euthanasia percentage in the present study was 0.33%. The total population of donkeys in the area of study was 99136 and the euthanized donkeys' number was 225 cases as percentage 0.23 %. The total population of horses was 6460 but the euthanized number was 127 cases as percentage 2%. The total population of mules is 3032 from them the euthanized numbers were 6 cases as percentage 0.20 %.

**Table (1):** Percentages of euthanasia in working equine according to species.

<b>Species</b>	<b>Total populations</b>	<b>Euthanized No.</b>	<b>Percentage (%)</b>
<b>Donkey</b>	<b>99136</b>	<b>225</b>	<b>0.23</b>
<b>Horse</b>	<b>6460</b>	<b>127</b>	<b>2.0</b>
<b>Mule</b>	<b>3032</b>	<b>6</b>	<b>0.20</b>
<b>Total</b>	<b>108628</b>	<b>358</b>	<b>0.33</b>

**Percentage of euthanasia in working equine according to the age of animal:**

Across all species the majority of animals euthanized were in the 5-15 years' age group. The percentages of euthanasia in working equine at the age below five years estimated as 10.2%, 3.1% and 0 % in horses, donkey and mule respectively. Whereas at the age of five to fifteen years the percentages of euthanasia were 100 %, 71.1% and 58.3% in mule, donkey and horses respectively. While the euthanasia of the age over fifteen years old were 31.5% and 25.8% in horses and donkey respectively.

**Table (2):** Percentages of euthanasia in working equine according to age of animals.

Age group	Donkey		Horses		Mules	
	No.	Percentage (%)	No.	Percentage (%)	No.	Percentage (%)
Less 5 years	7	3.1	13	10.2	0	0
5 to 15 years	160	71.1	74	58.3	6	100
Over 15 years	58	25.8	40	31.5	0	0

**Percentage of euthanasia in working equine according to sex:**

Concerning the percentage of euthanasia in working equine according to sex, the majority of euthanized cases were males representing 93.8% and 93.7% in donkeys and horses respectively. The euthanasia in female equine was 6.3% and 6.2% in horses and donkeys respectively.

**Table (3):** Percentage of euthanasia in working equine according to sex.

Sex	Donkeys		Horses	
	Number	(%)	Number	(%)
Male	211	93.8	119	93.7
Female	14	6.2	8	6.3
Total	225	100%	127	100%

**Percentage of euthanasia in working equine according to type of work:**

The recoded euthanasia of draught mules is 100%. In draught donkeys and horses, it was 80.9% and 67.7% respectively. In the pack type of work, euthanasia percentages were 20.5% in horses and 15.1% in donkey. The recoded euthanasia in ridden type of work was 11.8% and 4% in horses and donkeys respectively.

**Table (4):** Percentage of euthanasia in working equine according to type of work.

Type of work	donkeys		Horses		Mules	
	No.	Percentage (%)	No.	Percentage (%)	No.	Percentage (%)
Draught	182	80.9	86	67.7	6	100
Pack	34	15.1	26	20.5	0	0
Ridding	9	4	15	11.8	0	0
Total	225	100%	127	100%	6	100%

**Percentage of euthanasia in working equine according to causes:**

The overall results of affections leading to euthanasia in working equine are presented in Table (6). Fractures represented 27.6 % in donkeys, 48.8 % in horses and 66.7 % in mules. Old age and worn out represent a proportion of 25.3 % in donkeys, 18.1 % in horses. Paraplegia represents a proportion of 18.7% in donkeys, 7.1% in horses and 33.3 % in mules. Deformity of hoof or joint represents a proportion of 8 %in donkeys, 3.1 % in horses. Sloughing hoof represent a proportion of 5.3 % in donkeys, 1.6 % in horses. Tetanus represents a proportion of 4.45 % in donkeys, 12.6 % in horses. Cutting tendon represent a proportion of 4 % in donkeys, 2.35 % in horse. Rabies and other infectious diseases represent a proportion of 3.1 % in donkeys, 1.6 % in horses. Colic represents a proportion of 2.2 % in donkeys, 2.35 % in horses. Perforating wound represent a proportion of 0.9 % in donkeys, 1.6 %in horses. Recurrent tumor represents a proportion of 0.45 % in donkeys, 0.8 % in horses.

**Table (5):** The number and percentage of affection leading to euthanasia in working equine.

Causes of euthanasia	Donkeys		Horses		Mules	
	No.	Percentage (%)	No.	Percentage (%)	No.	Percentage (%)
Fractures	62	27.6	62	48.8	4	66.7
Old age and worn out	57	25.3	23	18.1	0	0
Paraplegia	42	18.7	9	7.1	2	33.3
Deformity of hoof or joint	18	8	4	3.1	0	0
Sloughing hoof	12	5.3	2	1.6	0	0
Tetanus	10	4.45	16	12.6	0	0
Cutting tendon	9	4	3	2.35	0	0
Rabies and infectious diseases	7	3.1	2	1.6	0	0
Colic	5	2.2	3	2.35	0	0
Perforating wound	2	0.9	2	1.6	0	0
Recurrent tumor	1	0.45	1	0.8	0	0
<b>Total</b>	<b>225</b>	<b>100%</b>	<b>127</b>	<b>100%</b>	<b>6</b>	<b>100%</b>

## DISCUSSION

The objective of the study is to describe the predisposing factors and reasons of euthanasia in working equine and to increase the knowledge about euthanasia. In the current study, out of the total 108628 of working equine in the area, 358 (0.33%) cases were euthanized. Among the studied equine, the higher percentage was recorded in euthanized horses (2%) in comparison to (0.23%) in donkeys and (0.20%) in mules. The higher euthanasia percentage in horses than donkeys and mules may be attributed to that the owners usually leave donkeys and mules without transport to veterinary clinic as low economic value of them comparison to horse and left to die naturally. In addition to the misuse and abuse of horse as working animal, as they used in danger draught work in construction materials lead to the more liable to accident and also the widely low body conditions in working horses and subject to under stress as poor management style. Also **Kandeel (1995)** mentioned that working equine was involved in wide deferent activities with very little management. Examination of the age of euthanized equine revealed that, the most common age was 5 to 15 years (mules 100%, donkeys 71.1% and horses 58.3%). Whereas the percentages of the older ages (over 15 years) were 31.5% in horses and 25.8% in donkeys. Highest percentage of euthanasia in the age of 5 to 15 years old may be as a result of danger works so became liable to fractures and other injuries. **Demelash and Moges (2006)** reported that old animals were at about 5-times greater risk (76.0%) than young animals. This may be attributed to the immune suppression due to different diseases and stresses. In addition, most of the equine owners do not take care of older animals in which regular feeding and health care. It is worth mentioning that euthanasia in equines recorded the highest percentage in male (93.8%) in donkey and (93.7%) in horses. This finding is suggestive for a direct correlation between euthanasia and the sex of equine species. Male equine mainly used in hard work as in brick kilns whereas the female equine used mainly in easy work as riding in farmer's home. **Pritchard et al. (2005)** recorded that among the horses, stallions were used more for draught and pack work and mares were used more for ridden and ceremonial work. It has been assumed that the type of work promotes the occurrence of euthanasia in equine. The highest proportions of euthanasia occurred in draught type of work in percentages of (100%) mules, (80.9%) donkeys and (67.7%) horses. Draught equine in these situations are often overworked, abused and beaten as a method of extracting more work from the animal. Also the improper design of carts can result in weight being carried solely on the horses' back, leading directly to injury (**Hovell, 1998**).

These findings are in agreement with **Pritchard *et al.* (2005)** who mentioned that, the prevalence of lesions and danger injures was influenced by the type of work carried out. Consistently, the causes and disorders associated with euthanasia in equine were summarized in (Table 6). Fractures (66.7% in mules, 48.8% in horses and 27.6% in donkeys), old age equine (25.3% in donkeys and 18.1% in horses) and paraplegia (33.3% in mules, 18.7% in donkeys and 7.1% in horses) represent high proportions in all working equine species. Previous reports mentioned by **Peloso *et al.*, (1994)** showed fractures in the front legs (40%) and hind legs (30%) in horses. Also **Johnson *et al.*, (1994)** mentioned that there were more proximal fractures (tibia, radius, and humerus) in horses. This may be due to animal abuse and neglect, and lack of the role of government awareness in rural area. Colic as a cause of death was high in the field but most cases died during treatment because the owner was trying to find another solution than euthanasia, regarding to refuse of owners to euthanized hopeless cases of colic and let them to die normally. Regarding to most common other causes of euthanasia in the three species which represent moderate percentage as deformity of hoof or joint represented a proportion of (8%) in donkeys and (3.1%) in horses, sloughing hoof represented a proportion of (5.3%) in donkeys and (1.6%) in horses. Less percentage presented in rabies and other infectious diseases (1.6%) in horses due to efforts and activity did by NGOs in the area of study and also perforating wound represented a proportion of (0.9%) in donkeys and (1.6%) in horses. **Tolera and Denka (2015)** recorded that external injuries were the major health problem of working equine. They also stated that abrasion wounds in horses due to improperly harnessing and saddles and the laceration wounds of donkeys due to over loading. Similarly, **Feseha (1997)** mentioned that the punctured and laceration wounds caused by wire gates and sharp objects respectively were the common causes of injuries in donkey. The overall observations proved high animal abuse and neglect. Also **FAO (2010)** reported ignorance of the importance of working animals' power to rural populations as a vicious circle of neglect.

### CONCLUSION

The presented findings may help owners to avoid the predisposing causes leading to euthanasia in equine aiming to lower the number of cases undergoing mercy killings and determine the best time to take decision for euthanasia.

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